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QUARTERLY ESTIMATES OF THE NATIONAL INCOME

The main use of national income estimates is to assist major decisions on economic policy, the ' global ' decisions which are involved in the assumption by the Government of the responsibility for avoiding severe inflation or deflation. Although these decisions are being taken continuously, the national income estimates which are essential for judging them are only available once a year. They then refer to a period that ended three months previously, and by the time just before the next estimates are issued our information is over a year out of date. A further disadvantage of annual estimates is that they summarise the experience of a whole year which may have had in its course very different periods economically.

The economic indices now available in this country, together with the structural information that can be gleaned from the National Income White Papers, make it possible to put together a rough total picture of the development of the economy. We have accordingly attempted to estimate economic developments quarter by quarter over the past 6 quarters, and to devise a means of making regular quarterly estimates. We have used a good deal of work prepared by the National Income research class which was held at the University in the Hilary Term, and whose names are given in a previous paper summarising their first results,[1] and also drawn on subsequent personal analysis, particularly the estimate of sector contributions in the paper on the National Income Matrix.[2]

The aims we set ourselves were as follows. First, we felt the most useful estimates would roughly correspond to the main tables of national income and expenditure which appeared in National Income White Papers before the current one. Secondly, it is preferable to have estimates corrected for seasonal influences, because they would, for technical reasons, have to be at least partly corrected anyway, and because the strong seasonal pattern would render impossible the clear reading of economic developments which is the main reason for attempting quarterly estimates. The estimates are given in terms of equivalent annual rates, because economists are now accustomed to annual magnitudes for the main components. Thirdly, we had to strike a compromise over the delay which would be acceptable after a quarter ends. The longer the delay, the more information is available and the more accurate estimates will be, but the less use they will be for judging current economic

[1] February-March issue of the BULLETIN.

[2] July-August issue of the BULLETIN.

policy. Probably in the present technical conditions the most satisfactory time-lag would be one of about two months,[1] but we are hoping that in due course a rather shorter delay will be optimal.

We must emphasise very strongly that too much weight should not at present be placed on the estimates. Probably the most useful way to consider our efforts is that we are devising a means of showing in one framework the published economic series of production, employment, consumption, prices and trade. By confronting indices one with another we occasionally notice features which are not otherwise apparent ; and we can show the combined implications of the movements of several series. Such implications are of course subject to much greater error than is any single constituent series. A further source of error lies in the absence of series for several important items. The main gaps are current earnings indices (particularly outside manufacturing), stock movements, Government current expenditure, current c.i.f. margins, invisible trade developments, and salary and profit indices. Some of these can be roughly estimated, though this often involves extrapolation, which brings into the estimate some reliance on the implications of past performance rather than the current performance which they are supposed to measure. Others can be obtained as residuals, with a heavy cost in accuracy. Interpretation demands close attention to how each item was estimated.

The general procedure is roughly as has been already described.[2] It is still felt that the most accurate fundamental method is to estimate changes in the Gross National Product, obtaining profits, investment and savings as residuals. For sectors of the national product, the totals obtained previously[3] were distributed over the four quarters of 1948 by value indices, which were also used to carry them ahead into 1949. What we are in effect doing is to use the estimates of sector output to weight value relatives, and thence to obtain a weighted index of the national income.[4] Details of estimation are :

(*a*) *Agriculture*

A quarterly index of the value of output was constructed, with the average for 1948 as base, from the figures given in the *Monthly Digest* of movement off farms of selected commodities, and of agricultural prices. The weight assigned to each commodity was proportional to the estimated value of the output of the commodity in 1948. It was assumed that the value of output in each quarter was proportional to the index number for that quarter. In point of fact, an index of this kind gives a very dubious indication of the value of the income actually created in that quarter, since both sets of statistics (*i.e.* movement off farms and prices) relate to commodities already produced and (in most cases) marketed : but it seems to be the only indication that we have. The concept reached is of the annual rate of output indicated (from past relationships) by the quarter's deliveries. The quarterly totals arrived at by this method were corrected for seasonal variation, seasonal correction factors calculated by Mr. J. R. Sargent being used. They are based on a value index similar to that described above. These (seasonally corrected) figures were then adjusted to allow for the value of feeding-stuffs and fertilisers consumed in each quarter, and for the subsidy paid on these in each quarter.[1] Quarterly estimates of these items were made.[2]

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[1] The present estimates were prepared before the end of August. The production information in the *Board of Trade Journal* for August 27th was the latest official information used.

[2] February-March BULLETIN.

[3] In the July-August BULLETIN.

[4] We thus can indicate the implication for the national income of a movement in any series. Our estimate for the total value of manufacturing output implies, for example, that a movement of 1 point in the Interim Index of Industrial Production is currently worth nearly £4 millions, and changes the annual rate of the national income by £45 millions.

(*b*) *Manufacturing*

The volume of output is obtained from the Index of Industrial Production, corrected for seasonal fluctuations.[3] The problem of finding an index for unit factor cost is a severe one. There are various indices which reflect movements in unit factor cost, but they all reflect other things besides. Export price indices reflect changes in profit margins in the export trade, which are much more violent than changes in profit margins for the whole of output for many reasons, particularly because of the lack of price control on exports. Wholesale price indices are highly sensitive to import prices and subsidies, the ' added value ' content of goods included being on the whole rather small. Earnings indices do not reflect costs other than wage costs, and they are unaffected by productivity changes. Retail price indices are especially sensitive to subsidies and indirect taxes, and also to distributors' margins. In this situation one's tactics must be defensive, and we decided to protect the estimates as well as we could against changes in export profit margins, subsidies, import prices and productivity by using series of each of the first three types. Weights are given according to weights in the production index, which are roughly proportionate to added value.

The export price series[4] cover half the weights in the index, the wholesale prices and earnings indices about a quarter each. Lastly the effect of import prices was roughly removed by subtracting a re-weighted import price index, giving most weight to raw materials, from the composite price index (assuming an import content of 20 per cent). We realise the resultant price index is far from satisfactory. Two particular problems yet to be solved are to allow for the time-lag before import price changes affect the price series used, and to allow for changes in price in other sectors, notably services, which supply the manufacturing sector. All we can hope at present is that unit factor cost in manufacturing is by far the main influence on the resultant index.

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[1] Not to have made such an adjustment would have implied that the total of these three items (*i.e.* value of feeding-stuffs, value of fertilisers, and the amount of subsidies to feeding-stuffs and fertilisers) in each of the six quarters was the same as the quarterly average for 1948, and such an assumption would not be justified.

[2] Estimates made by Mr. Sargent, of the value of feeding-stuffs and fertilisers in 1948, were taken as a basis, and quarterly indices were constructed from data given in the *Monthly Digest.* The estimates of subsidy payments were based on figures given in *The Economist* (19/2/49).

[3] As described in the April BULLETIN.

[4] Not the average *value* indices for quarterly estimates, because of its incomparability from one quarter to another—except in the case of food products, where the absence of a satisfactory alternative forced us to use a smoothed series of average values.

There is theoretically one source of error here, and this is that by multiplying together overall production and price indices we take no account of the price and production movements in particular industries. What we are in effect doing is to use a 1948-based production index correcting the 1946 weights for the influence of changes in output since 1946, but not for relative changes in unit factor cost. Similarly the price index weights are automatically corrected for price changes, but not for relative output changes. However, the problem of splitting the overall price index into price relatives for each industry would be very difficult. A rough comparison of price and production increases does not indicate any very strong correlation, such as would introduce great errors in the estimates.[1]

The use of a combination of the production index and this artificial price index gave an obvious upward bias to estimates made as checks for 1947 and 1948. This may be due partly to the upward bias in the production index considered as a measure of work done (because of the reduction of additions to work in progress), and partly to some inflation of profit margins in exports. Since the reasons for the bias may have ceased to operate, we make no allowance for bias in these calculations, though its possibility should not be ignored.

(*c*) *Services*

The value index was based on statistics of employment and earnings in the three most important divisions of this sector—Distribution, Transport and Communications, and Professional, Financial and Other Services. Road transport was considered apart from other forms of transport, as separate figures are available relating to it. The employment indices were constructed from data given in the *Monthly Digest*, while the estimates of earnings were based on the results of the Ministry of Labour earnings enquiries, wage rate indices published by Professor Bowley in the *London and Cambridge Economic Service*, and the trend of apparent increases in salary rates. Weights were assigned to each of the divisions in proportion to total employment in 1948 with some allowance for output per head.[2] Seasonal variations appear unimportant in the estimates so calculated and no correction has been made.

(*d*) *Government*

This is composed of (i) administrative wages and salaries, (ii) H.M. Forces' pay, and (iii) depreciation. The first was assumed a function of employment in local and national government (excluding Post Office) and of the official wage-rate index; the second of the number in the armed forces (with an allowance for pay increases since November); and the third was assumed to be slightly rising. It is interesting to note that the fall in forces' pay has apparently about equalled the rise in other items over this period, giving a resultant stability on balance.

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[1] We are concerned not with whether the implied value weights for 1948 are wrong but only whether such errors are in their turn correlated with value movements since the beginning of 1948.

[2] Based on the pre-war estimates of Barna (BULLETIN, Vol. 9, p. 213).

(*e*) *Other*

This consists of dwelling rents and depreciation, investment income from abroad and taxes paid by foreigners, all of which were assumed slightly increasing.

(*f*) *Depreciation*

The White Paper showed an increase of £75 million for 1948 over 1947, and an increase of about £20m. per quarter, on the White Paper basis, was assumed.

TABLE I

Quarterly Estimates of the National Income (*at current factor cost*)

(Seasonally corrected annual rates, in £m)

Sector	1948 whole	1948				1949	
		I	II	III	IV	I	II
Agriculture	532	480	500	560	590	560	610
Manufacturing and Mining	5292	5140	5180	5310	5540	5640	5840
Services	3172	3090	3160	3210	3220	3240	3280
Total Business Output	8996	8710	8840	9080	9350	9440	9730
Government	1026	1040	1020	1010	1030	1040	1040
Other	478	470	480	480	480	490	490
Gross National Income	10,500	10,220	10,340	10,570	10,860	10,970	11,260
Less Depreciation ...	825	790	810	840	860	880	900
Net National Income	9675	9430	9530	9730	10,000	10,090	10,360

The national income appears still to be rising at a rate of well over £500 million per annum, despite the end of demobilisation and some slackening of price rises. The same trends previously evident in sector shares seem to be continuing. The shares of agriculture and manufacturing are still rising (the latter now being over 51 per cent of gross national income) ; and those of government and services have continued to fall (the latter now being 29 per cent of gross national income).

In order to see the causes of this continued rise in the aggregate, we have to separate quantity increases from price increases, and this can be done by showing estimates of what sector outputs would have been if average 1948 factor cost had ruled throughout. Agriculture estimates were deflated by preparing a seasonally corrected price index.[1] For manufacturing we have a quantity index in the index of industrial production. For services and government, output was assumed a direct function of employment, and no alteration was made to the ' other ' sector in view of the arbitrary nature any price index would have. The results are shown in Table II.

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[1] An interesting property of the seasonal correction factor for agricultural prices is that the first quarter's factor is a reciprocal of the second's, which of course implies that the third's is of the fourth's. This means that the average price for each half-year is automatically seasonally corrected.

TABLE II

Quarterly estimates of the National Income (at average 1948 factor cost)
(Seasonally corrected annual rates, in £m).

	1948 whole	1948 I	II	III	IV	1949 I	II
Agriculture	532	490	490	560	590	560	560
Manufacture and mining	5292	5200	5250	5290	5420	5500	5660
Services	3172	3160	3170	3180	3160	3160	3180
Total Business Output	8996	8850	8910	9030	9170	9220	9400
Government	1026	1050	1020	1010	1020	1020	1020
Other	478	470	480	480	480	490	490
Gross National Income	10,500	10,370	10,410	10,520	10,670	10,730	10,910

The Economic Survey stated that 'the period of rapid expansion in many parts of the economy is drawing to a close' and forecast gross national income for 1949 at £10,900m. (at end-1948 prices). It seems from Table II that real output is still steadily rising, if anything at a slightly increasing rate, and that national income will be higher than forecast.

Working in fixed prices, agricultural output is higher than in 1948, but it appears not to have risen in the second quarter. The seasonally corrected price index shows in fact a rise, prices not having fallen this summer as much as usual. Previously the index had been exactly stationary for three successive quarters and practically unchanged for over a year, and one wonders whether it heralds a renewal of the agricultural price rise.

The official index of industrial production has been behaving very oddly this year. It started in January at 124, only 1 point above December despite the Christmas holidays in the latter. Then there was a jump of 8 points to 132 in February, for which there is no major explanation. This high level was kept up in March. There was a fall to 124 in April, a bigger fall than one would have expected (despite Easter holidays), and a rise to 134 in May, normally not a very good month. The provisional figure for June is 129, which is about the May level, if we allow for Whit Monday. In other words we are running at well over 130 in non-holiday months, after a very weak start to the year. If we ignore the rather odd fluctuations in the index, we see an astonishingly large increase in output. This can be shown by comparing each recent month with the corresponding figure for a year previously. March–April and May–June figures are averaged, because of the different holiday pattern in the two years.

(1946=100)		Production Index	Corresponding month(s) in the previous year	Difference
1948	July	112	107	+5
	August	110	104	+6
	September	124	115	+9
	October	126	120	+6
	November	129	123	+6
	December	123	115	+8
1949	January	124	118	+6
	February	132	123	+9
	March–April	127½	121½	+6
	May–June	131½	120½	+11

It appears that the index has recently sharply increased its rate of increase, and maintained the new rate for two months. The average increase for the first six months of 1949 over the first six months of 1948 is over 8 points, or nearly 7 per cent. There has been a slight increase in employment in the period, and it looks as if the Economic Survey end-1949 targets are going to be exceeded comfortably, largely owing to a fall in unemployment and continued recruitment of women. However employment rose from the first half of 1948 to the first half of 1949 by only approximately 1½ per cent in manufacturing. So there has apparently been a 'productivity' increase of over 5 %—over 7½ per cent if the May–June figures are compared with the previous year. June figures are not available in detail, but if we compare index numbers for the quarter March–May in each year we find the following industries with increases of 15 points or more:—vehicles (30 points), precision instruments (15 points), clothing (20 points), manufactures of wood and cork (17 points) and paper and printing (33 points). Since there have been only slight employment increases there must have been substantial increases in productivity in these industries. Clues as to the reasons are respectively more steel, health service demand for lenses, the 1948 increase in textile output, more wood for furniture, relaxation of restrictions on journals. We have in fact uncovered here some of the main reasons for the continued increase in national income, despite the end of demobilisation. These reasons appear to be basically the easing of steel, textile and wood bottlenecks, due to higher steel and textile output, higher newsprint and woodpulp imports, and reduction of softwood stocks. The increased production of precision instruments has a negligible influence on national income, but the increased added value by the other four is of the order of £250 millions at average 1948 factor cost, or half the increase in gross national income (at fixed prices) from the second quarter of 1948 to the second quarter of 1949.[1]

The manufacturing prices index definitely appears to have been flattening. It was forced down rather artificially by the sharp rise in import prices in the first half of 1948, which outweighed the rise in the composite index, constructed as described above, for British manufactures. It resumed its rise in the second half, but 1949 saw a flattening both of the composite index and imports. It certainly seems that the continued rise of the national income has been primarily due to production rather than price rises—and has been concentrated in a rather narrow range of industries released from ' bottle-necks '.

Distributive Shares

From here we proceeded to estimate the division of national income by distributive shares. For wages we have incomplete quarterly estimates for 1948 in the National Income White Paper, the remaining sections being estimated by interpolation. For the two quarters of 1949 we used wage-rate and employment indices, together with a rough allowance for overtime, labour redistribution and other ' residual ' factors, the allowance being based on a comparison between wage-rate and earnings indices in manufacturing for past years.[1] Salaries were obtained by interpolation and extrapolation on the very steady linear trend since the war. The linearity of this trend must be due to increases in salary rates gradually replacing demobilisation as a stimulant, and we assumed a continuation of these increases. The estimate of Forces' Pay has already been described. Rent was extrapolated. Profits and Interest (including mixed incomes) were obtained as a residual. The results are shown in Table III.

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[1] Vehicle output was the biggest single item in the increase, being responsible for nearly £150 million. This must augur well for profits in this group.

TABLE III

Quarterly Estimates of the National Income by Distributive Shares

(Seasonally corrected annual rates, in £m)

	1948 whole	1948 I	1948 II	1948 III	1948 IV	1949 I	1949 II
Wages	3975	3830	3920	4030	4120	4185	4280
Salaries	1850	1810	1835	1860	1885	1910	1935
Forces' Pay	246	280	245	225	230	225	220
Rent	430	425	430	430	435	435	440
Profits and Interest ...	3174	3085	3100	3185	3330	3335	3485
Total	9675	9430	9530	9730	10,000	10,090	10,360

Deductions from this table must be most cautious. The most striking conclusion is the fairly constant relation between wages and profits. On the other hand the index of 'residual' wage factors may no longer be increasing, (because of some short-time and less movement of labour to high-wage jobs). Extrapolation of this ' residual ' index may therefore have given an upward bias to the wage-bill estimate. So there is on balance some slight evidence for believing that the overall gross profit margin has been increased with the recent jump in the production index. The table also shows the position at the end of demobilisation, and suggests a post-war wage share of about 41 per cent (compared to 38 per cent pre-war) and a salary share of 19 per cent (compared to 24 per cent). The latter is perhaps not continuing to fall.

Balance of Payments

The basis for these estimates is the White Paper on the U.K. Balance of Payments (*Cmd.* 7648), which shows the various items in the current account balance for each half of 1948. The first task is to break up these half-yearly totals into quarterly estimates.[2] For visible imports and exports, the quarterly Board of Trade figures were taken, and it was assumed that the exports and imports in the first and second quarters (as shown in the White Paper) were distributed between these quarters in the proportions indicated by the

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[1] No better treatment is possible in view of the lack of current information on earnings. This method gives fairly good results for previous years. When profit and salary indices are published it would be most useful to have a linking monthly series between the 6-monthly earnings enquiries (perhaps based on a sample enquiry).

[2] The totals were slightly adjusted to make them comparable to those in the National Income White Paper. Also sales of Government surplus stores have been included in invisible exports, instead of, as in the Balance of Payments White Paper, being deducted from invisible imports.

Board of Trade figures—and similarly for the third and fourth quarters.[1] In the case of invisible items, the method of allocation was necessarily more arbitrary, but most of the individual items do not appear to fluctuate greatly over short periods, and the margin of error may therefore be small.

In estimating visible payments and receipts for the first two quarters of 1949, the Board of Trade figures were again taken as a guide. They were adjusted to make them comparable with the payments figures in the White Paper, particularly since the Board of Trade import returns are on a c.i.f. basis. A deduction was made of 6 per cent from the export figures, and of 15 per cent from imports. Estimates of invisible items in these two quarters were derived by extrapolation, since no current evidence is available.

In order to correct the (visible) export and import estimates for seasonal variations, the Board of Trade figures were again used for computing seasonal factors. No attempt was made to adjust the ' invisible ' items for seasonal variations, except in the case of travel expenditure. The final (corrected) results are shown in Table IV.

TABLE IV

Quarterly Estimates of the Balance of Payments

(Seasonally corrected annual rates, in £m)

	1948 whole	1948				1949	
		I	II	III	IV	I	·II
Visible Imports ...	1730	1735	1735	1650	1795	1870	1830
Invisible Imports ...	581	620	590	565	550	545	525
Total Payments... ...	2311	2355	2325	2215	2345	2415	2355
Visible Exports ...	1512	1390	1495	1545	1620	1785	1640
Invisible Exports ...	679	635	615	820*	645	665	690
Total Receipts	2191	2025	2110	2365	2265	2450	2330

* Includes receipts under the settlement with India.

These estimates show that within the margin of error of the calculations, we were in overall balance for the first half of 1949.[2] Total payments have not changed over the period but this balance has been the resultant of two opposing trends, falling invisible imports (such as Government oversea expenditure) and rising imports of goods. Both sorts of exports, however, have been rising, until the fall in visible exports in the second quarter of this year.

Consumption

The general procedure was as follows. The first step was to convert the quarterly information published in the *Digest of Statistics* into fixed-price estimates. Price indices for different commodity groups were constructed for 1946 to 1948. Since mid-1947 we have the relatives for groups of the

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[1] It will be remembered that the White Paper estimates are based on payments made, while those of the Board of Trade are based on movements of goods.

[2] These calculations assume that payments for exports continue to lag behind actual deliveries (hence the 6 per cent adjustment). They take no account of any extra delay in payment due to the expectation that sterling would be devalued.

Interim Index of Retail Prices. The relatives for durables were used for all household goods, since the former cover the bulk of household expenditure. Drink and Tobacco were separated, because a price index for tobacco could easily be constructed from tax changes (other changes being relatively unimportant), yielding a ' drink ' index as a residual. The price indices for 'Miscellaneous goods' and 'Services' were combined to form an index for all remaining items.

For relatives before mid-1947 we have the consumers' price index implied by the National Income White Paper for each year, and this was linked to the Interim Index relatives, quarterly figures being obtained for some items from the old Cost-of-Living index, for others by linear interpolation—any kinks in series due to incomparability of relatives[1] being smoothed out. The series provided us by deflation with the pattern of ' real ' consumption for 1946 to 1948, which was used to estimate ' real ' seasonal fluctuations. Though the price series were in some cases subject to substantial errors, these would not in general affect the seasonal index much. The shortness of the three-year period was a more serious defect, especially in view of sharp changes due to import cuts, derationing, etc.

Another problem is caused by the fact that the quarterly consumption statistics published are only available 3 months after the end of the quarter concerned—a longer time-lag than is acceptable to us. Provisional estimates have therefore to be made for the latest quarter. These are based on the more up-to-date physical series for consumption.

For food 32 series, covering over half personal consumption, were used. Unfortunately the movement of their weighted average diverges markedly from the movement of the fixed-price series, and this weighted average quantity index was used therefore only as an indication of trend, being applied to the fixed price estimate for the corresponding quarter last year. Quantity indices for the first two months of the latest quarter were also used for drink and tobacco. For clothing and household goods we have value relatives in the Retail Trade Index, which were applied to the current price estimates in the previous quarter. There are no satisfactory indices for remaining items which were estimated by extrapolation from the previous seasonally-corrected estimates. Detailed estimates are shown in Table V. On the whole the consumption estimates are the most reliable part of this paper.

The increase in current price expenditure in the second quarter of 1949 appears to be mainly in food (price rise and sweet derationing),[2] tobacco (delayed purchases of those who hoped for a tax cut) and clothing (derationing). Drink expenditure ceased to fall, but did not increase after the budget. Up to then total consumption had been very stable, with household goods and

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[1] The Interim Index covers, of course, mainly wage-goods, the National Income White Paper indices all goods.

[2] Too much should not be read into this rise, since the C.S.O. estimates for the first quarter seems to imply a fall in 'real' consumption, compared to the first quarter of 1948, and may well be revised upwards.

TABLE V

Quarterly Estimates of Consumption Expenditure
(Seasonally corrected annual rates, in £m)

		(a) At current prices					
	1948	1948				1949	
	whole	I	II	III	IV	I	II
Food	2181	2130	2180	2185	2230	2155	2350
Drink	762	740	780	765	755	680	675
Tobacco	772	740	805	770	770	725	800
Rent and rates	598	595	595	595	605	610	615
Fuel and light	349	330	355	350	355	360	350
Household goods	515	525	505	510	515	550	555
Clothing	853	810	810	885	880	945	1040
Other	1974	2015	1975	1935	1965	1990	2030
Total	8004	7885	8005	7995	8075	8015	8415

		(b) At average 1948 prices					
	1948	1948				1949	
	whole	I	II	III	IV	I	II
Food	2181	2160	2140	2195	2230	2150	2255
Drink	762	785	765	750	740	670	705
Tobacco	772	770	795	765	765	710	790
Rent and rates	598	590	600	600	605	610	610
Fuel and light	349	335	355	350	350	350	350
Household goods	515	530	505	510	510	545	550
Clothing	853	850	830	865	840	875	960
Other	1974	2015	1980	1935	1960	1985	2010
Total	8004	8035	7970	7970	8000	7895	8230

clothing gaining at the expense of drink and tobacco, further continuing the trend towards the pre-war pattern of spending. Clothing has, in fact, a higher proportion of all consumption expenditure than before the war, which however indicates that the clothing boom may be only temporary. Drink and tobacco are gradually sinking towards their pre-war proportion.

When we look at ' real ' consumption in the fixed-price section we see that the increase in total quantity has not matched the increase in national production, though there is a noticeable rise in the second quarter of 1949. Food is virtually unchanged. Drink and tobacco are lower despite their recovery in the last quarter. Drink is now well below pre-war, and tobacco for the average of the half year is down to pre-war. Household goods expenditure is higher this year in real terms, and so is clothing outlay. Inspection of the two sections of the table shows that while the rise in clothing expenditure was originally due to the price rise, it is now due more to increased volume. Comparison with the Economic Survey suggests that the consumption forecasts are being substantially fulfilled—so far—except that food is falling rather below and clothing running rather above, expectation.

Public Finance

In order to complete the analysis of national expenditure it was necessary to estimate movements in a number of items of public finance. This presents great difficulties. One might perhaps put in a plea here for a more useful division of exchequer returns, particularly in expenditure. The present returns allow one to go some way towards preparing current estimates of revenue, as shown in the left hand side of Table 23 in the latest National Income White Paper, but we can make very little progress in reconstructing the expenditure division on the right hand side. The expenditure items which are given separately are mainly of limited interest. The all-important division between expenditure (i) on goods and services, (ii) on subsidies, and (iii) on social security transfers, cannot be found. Doubtless the breakdown which is given was once adequate, but one development of modern economic analysis is a keen interest in the economic effects of different sorts of Government expenditure—particularly as between the three categories mentioned above. We know from scraps of information occasionally handed out in Parliament that the Government keeps itself informed on this division, and it would be a great act of public enlightenment, at little cost, to make this information available regularly—if not monthly, then at least quarterly.[1]

At present, we have to make very clumsy guesses at the magnitude of these key pieces in the pattern of economic development, particularly at the size of Government current expenditure on goods and services. A method was worked out for roughly deducing this item from the movement of supply issues, and a test for the 1948 expenditure seemed fairly successful.[2] However, this method was based implicitly on the assumption that there were no changes in departmental balances, nor any changes in net indebtedness of the Government to the rest of the economy (as might come through delay in settling contractual obligations). The pattern of supply issues is so odd that one is forced to acknowledge that while these assumptions may not be far wrong from year to year, they are useless for quarterly movements. It is also such an irregular pattern that one cannot absorb such changes in seasonal correction factors.

What we have done here is to plot the annual figures which are given and graph the development to mid-1948. We have then obtained a later point by assuming that current expenditure for the first half of 1949 would bear the same ratio to the first half of 1948 that supply issues bear for the two periods. This enables graphical interpolation for the intervening period which was done on a pattern indicated by a moving average of supply issues.[3] This is admittedly rough, and is subject to an error margin of about ± £50 millions, but it provides an answer roughly compatible with indications in the Economic Survey, though slightly higher. The results, which are given in Table VII overleaf, indicate that if the development was a smooth one, the downward trend in Government current expenditure since the end of the war was reversed early in 1948, as demobilisation came to an end and was outweighed by growing civil expenditure.

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[1] Most economists would willingly dispense with some of the current details of issues such as those to reduce debt on Suez Canal shares or those under the Tithe Act in return for the analysis outlined above. Such an analysis need not be reconcilable with Supply service issues, though it would be a further help if it could be.

[2] See BULLETIN, Vol. 11, p. 68.

[3] It might be thought dangerous to base *all public* expenditure on *central government* supply issues, but some local and national insurance current spending is indirectly financed out of these too.

Another expenditure item needed is subsidies. There are clues as to the level of various sorts of subsidies in Budget speeches and other Government statements, and these have been used to construct the figures shown below. It is assumed that the cut in subsidies was not fully operative in the second quarter of this year.

On the taxation side, we need first indirect taxes. Central Government receipts were seasonally corrected in the usual way. Employers' contributions to national insurance were found by applying contribution rates to employment movements, and local authority rates were extrapolated from annual data. Public debt interest and transfers were roughly estimated in the same way, and direct taxes found by seasonal correction of weekly figures. These estimates provide the following rough outline of aggregate private income.[1]

TABLE VI

Quarterly Estimates of Aggregate Private Income
(Seasonally corrected annual rates in £m)

	1948	1948				1949	
		I	II	III	IV	I	II
Consumption	8004	7885	8005	7995	8075	8015	8415
Direct Taxes	1997	1885	2070	1950	2185	2345	2075
Savings	985	(940)	(765)	(1065)	(1000)	(970)	(1095)
Aggr. Private Income	10,986	10,710	10,840	11,010	11,260	11,330	11,585

Table VI shows that private income has climbed less rapidly than national income, mainly because of the stability in public debt interest and capital transfers. The rising level of direct tax receipts up to the first quarter of 1949 is also noticeable. This is partly the result of the inflationary rise in the national income. The second quarter of 1949 showed definitely low tax receipts, compared to previous years, perhaps because a production increase does not affect taxable incomes immediately. The Table also provides some check on overall accuracy by showing fairly stable residuals for savings.

We can now draw the various items together into a table of resource allocations given overleaf.

There is probably some connection between the rise in consumption and the fall in exports in the second quarter of 1949. The combination of the two changes suggests that there is still operating at least sectional inflationary pressure.[2] It appears that during 1948, as for previous years, the bulk of the increase in production was going into increasing exports, but that in 1949 much of it has gone into consumption and government expenditure. It also appears that indirect taxes have fallen more than subsidies, so that net indirect tax receipts may be lower, despite the reduction in food subsidies. The movement in investment is not entirely unreasonable, when it is remem-

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[1] Public debt interest and transfers were used to reach aggregate private income from national income. Both income and savings include capital transfers.

[2] Indicated also, of course, by the failure of the derationing of sweets.

TABLE VII. *Quarterly Estimates of National Expenditure*
(Seasonally corrected annual rates, in £m)

	1948	1948				1949	
	whole	I	II	III	IV	I	II
Consumption	8004	7885	8005	7995	8075	8015	8415
Government current Expenditure	1914	1880	1875	1920	1970	2020	2065
Investment	(1527)	(1670)	(1510)	(1240)	(1715)	(1670)	(1415)
Exports	2191	2025	2110	2365	2265	2450	2330
Imports	–2311	–2355	–2325	–2215	–2345	–2415	–2355
Net National Product at Market Price	11,325	11,105	11,160	11,305	11,680	11,720	11,870
Subsidies...	515	485	515	525	535	550	520
Indirect Taxes	–2165	–2160	–2145	–2100	–2215	–2180	–2030
Net National Income ...	9675	9430	9530	9730	10,000	10,090	10,360

bered that it includes stock changes.[1] The drop in the third quarter of 1948 suggests that the righting of our balance of payments occurred at least partly as a result of stock falls (*e.g.* the Indian settlement, which is implicitly treated as destocking). The value of building and deliveries of machinery to the home market have been maintained, and we may expect the Survey forecast of fixed capital investment to be at least equalled, so that the downward trend in investment is probably due to a reduction in stocks. The rise in output noted above involves some increase in work in progress, and therefore material and manufactured stocks must have fallen more than is indicated here. Examination of stock figures shows increases in metal stocks, but falls in coal, nearly all textiles, softwood and bricks. Probably the fall in stocks of sugar products was also considerable.

It is on the whole unlikely that the relatively favourable figures for the second quarter will be repeated. Production rises, if they are, as is suggested, due to easing of bottlenecks, cannot be repeated on the same scale; exports have to be pushed up further; Government expenditure is clearly on an upward trend and destocking, if it has occurred, cannot continue. The expectations are therefore that we shall see lower consumption figures for later quarters, and hence that the Economic Survey forecast of consumption may not quite be fulfilled.

Over all there are not very surprising movements to record. Perhaps the main conclusion of these estimates is that the economy is still developing along much the same lines despite the end of demobilisation, though the home economy rather than exports has lately taken a big share of increased output.

DUDLEY SEERS.

In association with P. D. HENDERSON, D. G. HOLLAND *and* P. F. D. WALLIS[2]

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[1] A fall in stocks of £100 m. in a quarter will appear as disinvestment of £400 millions when converted into annual rates.

[2] There was a good deal of overlapping but the division of responsibility has roughly been: Henderson for Agriculture, Services and Balance of Payments; Holland for Distributive Shares; Wallis for Consumption; Wallis and Holland for manufacturing prices and much of Public Finance; Seers for the remaining sections of production, for part of Public Finance, for fixed-price estimates and for general co-ordination and presentation.

HUMAN NEEDS DIETS FROM 1936 TO 1949

1. INTRODUCTORY

The expectation that shortages will occur is liable to create shortages even before the genuine conditions for them arise. Thus it was during the latter part of 1939 with respect to food. Some foods became scarce largely because of increased purchases by people eager to lay in stocks, and prices went up. The Ministry of Labour index of retail prices of food jumped in one month, from September 1st to October 1st, from 138 to 150; by December 1st it had reached 157. On January 8th, 1940, rationing was introduced, although at first it only applied to bacon, butter, and sugar. During the first half of that year, shortages of other basic foods became evident, and partly owing to the need of finding substitutes for them, the total cost of food tended to rise further. The Ministry of Labour index, however, showed only slight fluctuations; this was mainly due to the fact that this index was confined to a small group of foods in the medium price ranges whose movement was controlled by the Ministry of Food, which was becoming a huge trading concern. In July, rationing was extended to margarine and cooking fat, and as time went on, more and more foods were added to the list; but the staple foods, flour, bread, and potatoes, did not join it until the war was over.

In 1940, Professor Bowley, then Director of the Institute of Statistics, suggested that it might be desirable to undertake regular inquiries into the actual changes in the cost of living of working-class families, in order to obtain some figures that would be more realistic than the Ministry of Labour index, which was already acknowledged to be out of date before the onset of rationing, when the weighting used for its compilation became wholly fictitious. One of our surveys thus started[1] was the series dealing with the changes in the cost of a ' human needs ' diet, *i.e.*, a diet that would supply adequate nutrition for a small outlay.

Unfortunately, no generally accepted data of nutritive values of foods as eaten, and of standard nutritional requirements relating to the age and sex of persons, were available at the beginning of the war. In 1940, we compiled for our use in the analysis of household accounts a set of data of standard gross nutritional requirements, of calories and protein, as well as a set of nutritive values of foods, partly from British and partly from U.S.A. sources. These data were employed by us until April 1943. We then obtained tables of nutritive values from the Ministry of Health, and the Ministry also supplied us with their scale of standard net nutritional requirements. These latter standard requirements we have used ever since for our calculations, but the Ministry's tables of nutritive values were superseded by the data given in the *Memorandum on Nutritive Values of Wartime Foods*, published by the British Medical Research Council in 1945, which we have applied to our calculations since November of that year. The differences between the data of the *Memorandum* and those obtained prior to its publication from the Ministry of Health, are generally slight; the differences between these and between our data, which in many instances were based on much earlier researches, were in some instances fairly substantial. Further, our data of *gross* nutritional requirements, based on the recommendations made by the British Medical Association in 1933, differed, of course, considerably from those of *net* nutritional requirements which we received from the Ministry of Health in 1943. In order to facilitate comparisons of the figures in our earlier papers on a ' human needs ' diet with those in our later papers in this series, we published for a time all our main calculations for the two overlapping sets of data; but the picture as a whole was liable to appear somewhat distorted. The main purpose of this present summary of the articles that have so far appeared in this series, from the spring of 1941 until the spring of 1949, is to unify it at least in outline. We shall apply to all our calculations only the latest available data, *viz*., the Ministry of Health standard requirements of nutritional intake and the data of nutritive values of the *Memorandum*. Our discussion will be confined mainly to the most important aspects of a ' human needs ' diet: its cost in relation to its calorific and protein values; but it should be borne in mind that *ex hypothesi*, the intake from the diet of essential minerals and vitamins would have been reasonably satisfactory.[1]

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[1] In March, 1941.

2. DEFINITION OF A ' HUMAN NEEDS ' DIET

Our series started in 1941, and since then—with one exception—surveys were carried out twice yearly, usually in April and in November. The first one, however, was undertaken in March, and that in the spring of 1949, in May. The autumn inquiry in 1947 had to be omitted for technical reasons. We collected our data mainly in Oxford, from the less expensive food shops and from market stalls, but since the autumn of 1948 we have extended our investigations to London and Reading.[2] In general, we took up the line of inquiry followed by Mr. S. Rowntree in his researches into *The Human Needs of Labour*, in 1918 and 1936,[3] with respect to the cost of food, and we termed the diet thus surveyed a ' human needs ' diet. We cannot do better than give Mr. Rowntree's own definition of it. "I have selected a dietary on which to base the cost of living. It certainly cannot be called extravagant; it errs, if at all, on the side of undue economy. Indeed I should like to make it clear that I do not put it forward as the kind of dietary that I consider entirely satisfactory for unskilled workers. I do so rather as representing a standard below which no class of worker should be forced to live. . . .We must, however, bear in mind that no housewife without a considerable knowledge of the nutritive value of different foodstuffs and considerable skill in cooking, would be likely to choose a menu at once so economical and so comparatively attractive as the one upon which I base my costs."[4]

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[1] For a discussion on this point see, *e.g.*, *A ' Human Needs ' Diet*, BULLETIN, Vol. II, No. 6.

[2] Small sample inquiries undertaken at various dates, indicated that for similar types of shops, food prices were about the same in urban districts all over the country, and no significant differences were found between the prices in Oxford and those in Reading and in working-class districts of London.

[3] In citing Mr. Rowntree we shall always be referring to the revised and re-written edition of his book, published in 1937.

[4] *Op. cit.*, pp. 79 and 114–115.

For the size of the family we adopted Mr. Rowntree's basic data, assuming it to consist of 5 persons—husband, wife, and three children under 14 years of age. Within the limits defined in Mr. Rowntree's statement, we tried to compile schedules of diets that could be purchased without undue difficulties—allowing for the particular circumstances during each of the periods under survey—and which would yield meals that could be assumed to be generally acceptable to a family. In this, two things had to be taken into consideration : first, that changes in rationing and shortages of accustomed foods called for considerable adaptability in cooking as well as in tastes; secondly, that while advertisements by the Ministry of Food and articles in newspapers and periodicals tried to foster people's readiness to accept unusual dishes, and while, moreover, wartime exigencies acted as a stimulant to experimenting and ' making do ' also in the realm of food, it would have been expecting the impossible to assume that flexibility could go as far as achieving such adaptations always in the most perfect way and at a minimum cost. This could have been attained only with meals prepared by highly skilled dieticians. From a housewife's and her family's point of view, ' adaptation ' in this context is bound to have a strictly culinary and not a nutritional meaning, simply implying the substitution of one ' nice meal ' for another that is no longer available. But a meal may be tasty and look attractive and yet be deficient in essential nutrients; hence a housewife may spend on a new dish what she considers a reasonable sum only to find her family demanding more food than usual when the next meal comes round. Changes in our diet schedules from one period to another, necessitated by the circumstances then ruling, were not threfore always made at an absolute minimum cost of the nutrients that had to be replaced, but rather in consideration of what foods were likely to be chosen by an economical and efficient housewife.[4] Moreover, the replacements suggested by us did not always aim at a perfect substitution of nutrients but rather attempted to strike a fair balance between culinary and nutritional needs.

The foods scheduled in our dietaries were made up into experimental meals in 1941, and every substantial variation that had to be introduced was tested in this way, so as to make sure that it was possible to transform the foods into adequate menus for a family of 5 persons. Since the spring of 1946, we analysed not only the diets as a whole but also the optimum shares that would be avilable to the 5 members of the family, and we found that it would be possible for each of them to attain a balanced nutrition. In thus splitting up the diet into 5 shares we disregarded the rations as allotted per head by the Government, since obviously most housewives treat these foods as a family pool out of which they prepare the meals and distribute the shares according to individual needs and to custom. Indeed, only by taking it for

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[1] *E.g.*, when meat became very scarce we allowed on occasion for a higher outlay per lb. of it than was warranted by the rise in the average price, since the better cuts of meat are more suitable for carving than the poorer ones, and a skilful housewife can make thin slices of meat go much further than pieces of it, without giving her family the impression of having a meatless meal.

granted that the two adults of the family would profit by the fact that the children's rations of certain foods were rather large compared with the children's nutritional needs, was it possible to compose ' human needs ' diets for a family of 5 persons at the relatively low figures of total cost we have given for the various dates.

3. A ' HUMAN NEEDS ' DIET IN 1936, 1945 AND 1949

In order to convey a general idea of the structure of the diet, and of the changes that have occurred in the schedule from 1936 to 1949, we contrast in Table I a summary of Mr. Rowntree's ' human needs ' diet with summaries of the diets scheduled by us in April 1945 and in May 1949. One alteration has been made in Mr. Rowntree's original diet, in that 16.8 lb. of wholemeal flour have been replaced by 23 lb. of bread and, in connexion with this, 2½d. have been deducted from the outlay on condiments in his diet, since no yeast would be required for the baking of bread at home. This raised the cost of Mr. Rowntrees' diet in 1936 from 20s. 6d. to 21s. 10½d. The cost of our diet in May 1949 was exceptionally high owing to the fact that not only were old carrots and swedes virtually unobtainable but that the same was true also of fresh herrings. We therefore included in the schedule a tin of carrots and replaced the herrings by mackerel, which latter resulted not only in a higher price per lb. of fish but also necessitated the inclusion of a larger quantity of it, since mackerel are less nutritious than herrings. The relatively large purchases of milk, however, in our diet schedules as compared with the schedule drafted by Mr. Rowntree, were envisaged from the beginning of our series, in accordance with more recent researches into children's needs for calcium. Until the summer of 1946, 5 pints of milk were received by 3 children at school at 1½d. a pint, and since then free of charge, and our figures of cost make allowance for this. It will be seen that the average price of milk in 1945 and 1949 is given at 3¾d. a pint. The actual price of milk in April 1945 was 4½d. a pint, and in May 1949, 5d. a pint, so that our average price for milk corresponds to the cost of 14 pints of milk at the full price and of 5 pints of milk received at school.

Our diet schedules for April 1945 and May 1949, have been discussed in detail in earlier numbers of the Bulletin,[1] and it will suffice here to say that the main differences between these and Mr. Rowntree's dietary are largely the outcome of rationing and shortages, and of changes in feeding habits brought about by these, or else they seemed to be called for by the relative costs of certain foods. For when a housewife finds the cost of food in general too high she will naturally attempt to replace some dear foods by some cheaper ones. Thus we assumed that in the spring of 1949 a housewife with a small income would rather buy a pound of figs and 6 oz. of jam per week than a pound of jam and 8 oz. of dried fruit, as in 1936, since the former would only have required an expenditure of 1s. 1¼d. while the latter would have cost 1s. 7d. A special reference is perhaps necessary with respect to the substan-

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[1] BULLETIN, Vol. 7, No. 8 and Vol. 11, No. 6.

TABLE I: *Weekly 'Human Needs' Diet for 5 Persons*

		1936 (Rowntree)		April 1945		May 1949		Price Index[1] (1936=100)	
		Quantity	Cost s d.	Quantity	Cost s. d.	Quantity	Cost s. d.	1945	1949
1	Meat[2]	7 lb	4 7½	7 lb	5 10	3 lb 12 oz.	5 5	126	219
2	Bacon	1 lb 8 oz.	1 4½	1 lb 4 oz.	1 10½	10 oz.	1 3	164	218
3	Margarine	1 lb 8 oz.	7½	1 lb 14 oz.	1 5	1 lb 14 oz.[3]	1 6¾	180	200
4	Other Fats[4]	1 lb 4 oz.	7	10 oz.	5¾	10 oz.	7½	164	214
5	Sugar	2 lb	4½	3 lb 8 oz.	1 2	3 lb 2 oz.	1 3¾	178	222
6	Tea	8 oz.	9	8 oz.	1 4	8 oz.	1 9	178	233
7	Cheese	1 lb	9	10 oz.	8¼	10 oz.	8¾	144	156
8	Eggs	1 egg	1	16 eggs[5]	1 8¾	10 eggs	2 1	130	250
9	Syrup[6]	1 lb	3	1 lb	8	1 lb	9½	267	317
10	Skimmed Condensed Milk[7] ...	14 pt.	2 0	4 pt.[8]	9	3⅓ pt.	1 4	182[9]	281
11	Full Cream Fresh Milk... ...	—	—	19 pt.[10]	5 10½	19 pt.[11]	5 10	123	123
12	Bread[12]	23 lb	3 11½	18 lb	3 4½	21 lb 14 oz.	4 8¼	109	125
13	Flour[12]	1 lb 4 oz.	2	3 lb	8½	2 lb	7½	177	234
14	Potatoes	14 lb	10½	21 lb	1 6	21 lb	3 0¾	114	233
15	Fresh Vegetables	10 lb 8 oz.	9	14 lb	3 4¼	12 lb 8 oz.	5 2½	335	583
16	Dried Legumes	1 lb 4 oz.	4½	2 lb	11	1 lb	10¾	153	299
17	Rolled Oats[13]	2 lb	6	2 lb 8 oz.	8¾	2 lb 8 oz.	1 5½	117	233
18	Other Cereals	1 lb	2¾	2 lb	9¾	1 lb 9 oz.	1 0	177	279
19	Dried Fruit	8 oz.	1½	8 oz.	4½	1 lb	10	300	333
20	Jam	1 lb	6	4 oz.	3	6 oz.	5¼	200	233
21	Cocoa	4 oz.	2½	4 oz.	3½	4 oz.	7¾	140	310
22	Fish[14]	2 lb 8 oz.	9¼	1 lb 14 oz.	1 8	5 lb 7 oz.	4 6	288	267
23	Sausages...	1 lb	6	—	—	7 oz.	8	—	300
24	Apples	4 lb	6	—	—	—	—	—	—
25	Other Fresh Fruit and Vegetables	—	9	—	—	—	—	—	—
26	Condiments	—	3[15]	—	4[16]	—	1 0[16]	—	—
27	Tinned Carrots	—	—	—	—	1 tin	11½	—	—
			21 10½		36 1½		48 8	*165*[17]	*222*[17]

[1] All the prices used were obtained by dividing total cost by total quantity. [2] In 1936, including 1 lb of liver.
[3] The full weekly ration for 5 persons was 2 lb 3 oz.
[4] In 1936, 1 lb of dripping and 4 oz. of suet; in 1945 and 1949, cooking fat only. [5] One shell egg and 15 dried eggs.
[6] In 1936, treacle. [7] The quantities shown are in terms of fresh milk. [8] Dried Household milk.
[9] Corrected for absence of sugar is skimmed dried milk. [10] Including 5 pints at school, at 1½d. per pint.
[11] Including 5 pints at school obtained free.
[12] In his schedule for 1936, Mr. Rowntree included no bread but 16.8 lb. of wholemeal flour and 1¼ lb. of ordinary flour. We have replaced the wholemeal flour by 23 lb. of white bread, thus raising the cost of the 1936 dietary by 1s. 7d.
[13] In 1936, oatmeal. [14] Herrings and kippers in 1936, tinned herrings in 1945, mackerel and kippers in 1949.
[15] Mr. Rowntree suggested an outlay of 5½d.; but this included the cost of yeast for the baking of bread at home.
[16] Assumed. [17] Index of cost $\left(\frac{\Sigma P_n Q_n}{\Sigma P_0 Q_0}\right.$; n=year of survey; o=base year, 1936$\left.\right)$.

tially lower allowance of sugar in Mr. Rowntree's schedule as compared with our schedules. This, in fact, is only apparent, for approximately another 3 lb. of sugar would have been obtained from 14 pints of sweetened condensed milk, *viz.*, about 3½ oz. per pint, of fresh milk consistency.

All the dietaries would supply about the same amounts of most of the important nutrients. Owing to the inclusion of liver in Mr. Rowntree's diet —at 10d. a lb. in 1936—his diet was, however, richer in vitamin A than all our diets; on the other hand, it was poorer in calcium, partly because it allowed for a consumption of only 14 pints of milk and partly because in 1936, bread and flour were not reinforced with calcium, which only started in 1942 and became general in 1943[1].

4. The Cost of a 'Human Needs' Diet and its Nutritive Value

From 1936 until the spring of 1945—just before the end of the war—the index of cost had risen from 100 to 165 (Table I); by May 1949 it was up to 222; *i.e.*, the amount of main nutrients that in 1936 could be acquired by a poor housewife for a shilling cost her about 1s. 7¾d. in April 1945, and 2s. 2¾d. in May 1949. This steep rise in cost reflects partly a rise in the prices of foods in general, while in part it was due to the fact that bulk buying and price control had abolished the wide ranges of grades of many specific foods that were common before the war; consequently the prices that had to be paid by the poorest people had risen by more and those paid by the wealthiest by less than the average figures. To some extent an increase in the cost of food also resulted from the need to replace certain foods that were in short supply owing to rationing and general scarcity, by others that were relatively dearer.

Some idea of the impact of these several factors on the cost of food for a housewife of the type envisaged by us, can be gleaned from the indices set out in Table II. The first column gives the Ministry of Labour index of the retail price of food based on the twelve-monthly average for 1936. From July 1947, the Ministry of Labour changed the weighting as well as the general structure of their index, by relating it to the relative expenditure shown in the working-class household accounts that were collected by the Ministry in 1937–38. For the first month, however, figures were published for both the old and the new index, and we adjusted the subsequent figures by means of these price relatives so as to make the index continuous; but the index figures thus obtained have no claim to precision, although they may not be out by more than a few points. In the second column of Table II we show an index of food retail prices published by Prof. R. G. D. Allen in Bulletins I and II, Vol. XXVII, of the London and Cambridge Economic Service, and which follows Mr. Seers's calculations in the Bulletin of the Oxford Institute of Statistics.[2] This a Laspeyre type index employing throughout the weights obtained from the household accounts collected

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[1] The intake of calcium from the diets scheduled by us would have been approximately one-fifth to one-quarter above that from Mr. Rowntree's diet before the introduction of calcium into bread and flour, and about one-third after that.

[2] Vol. 10, No. 5.

TABLE II

Indices of Cost of Food

	Ministry of Labour Index of Food Retail Prices Monthly Averages	Allen-Seers Index of Food Retail Prices Monthly Averages	' Human Needs ' Diet					
			Index of Cost				Moving Price Index[3]	
			Uncorrected[1]		Corrected[2]			
			Spring	Autumn	Spring	Autumn	Spring	Autumn
1936	100	(100)[4]	—	100	—	100	—	100
1937	107	—	—	—	—	—	—	—
1938	108	108	—	—	—	—	—	—
1939	108	110	—	—	—	—	—	—
1940	126	125	—	—	—	—	—	—
1941	129	133	151	152	139	140	135	139
1942	124	135	155	152	144	140	142	136
1943	128	135	160	162	148	150	141	141
1944	129	135	169	166	157	154	150	146
1945	130	137	165	165	153	153	146	145
1946	130	139	171	175	158	162	155	151
1947	127[5]	149	197	—	182	—	186	—
1948	134	161	196	194	182	180	194	185
1949	134[6] (142)[7]	162[6] (172)[7]	222[8]	—	206[8]	—	209[8]	—

[1] Dietary for 1936 contains no fresh milk.

[2] 14 pints of skimmed condensed milk in dietary for 1936 replaced by 14 pints of fresh full cream milk and 1 lb. 10 oz. of sugar, raising its total cost from 21s. 10½d. to 23s. 8d.

[3] $\frac{\Sigma P_n Q_n}{\Sigma P_0 Q_n}$.

[4] Interpolated by means of Ministry of Labour Index.

[5] Ministry of Labour Index adjusted from July, 1947.

[6] Average for first 4 months.

[7] Average for May and June (Post-budget reduction of food subsidies).

[8] Last week of May.

by the Ministry of Labour in 1937–38; hence—like the Ministry of Labour index—it assumes throughout the purchase of the same quantities of each food group, showing for this the total relative changes in cost. This index starts in 1938, but in order to make it more easily comparable with our other indices in Table II we have assumed 1936 to be the base year and the total rise in price from then to 1938 to correspond to that shown by the old Ministry of Labour index. There is no real foundation for this assumption, and only the figures from 1938 onward are significant. Professor Allan compiled figures of twelve-monthly averages only up to 1947, and the later figures of this index are based solely on Mr. Seers's data. For 1949, we give for the Ministry of Labour index as well as for the Allen-Seers index, first the monthly averages for the first four months and then, in brackets, the averages for May and June, when the reduction in food subsidies had affected the retail prices. Since from 1948 onward the same weights are applied to the Ministry of Labour index and the Allen-Seers index, the percentage rise of the two indices must obviously be identical, the apparent slight difference in one set of the figures being due to rounding off.

The remaining columns of Table II deal with the changes in cost and in price of a ' human needs ' diet. We first show the uncorrected indices of cost, then corrected ones, and, finally, a moving price index. The uncorrected index of cost simply compares the cost of Mr. Rowntree's diet in 1936, as shown in Table I, with the cost of the dietaries compiled by us since the spring of 1941. In the corrected index, the cost of Mr. Rowntree's diet in 1936 has been raised from 21s. 10½d. to 23s. 8d., so as to allow for the replacement of 14 pints of skimmed condensed milk, costing about 1¾d. a pint, by 14 pints of full cream fresh milk at 3d. a pint, and, in addition, 1 lb. 10 oz. of sugar, in order to attain the full calorific replacement of the sweetened condensed milk. This correction brings Mr. Rowntree's diet more fully in line with the diets as compiled by us. No allowance has been made for the consumption of cheap milk at school in Mr. Rowntree's dietary, but it could easily have been achieved within the range of total expenditure assumed by him, since he made a fairly generous provision for the purchase of additional fruit and vegetables, which has no counterpart in our schedules; some of this outlay could have been diverted to the purchase of milk at school. If we consider Mr. Rowntree's diet simply from a culinary viewpoint, the uncorrected figures of cost are perfectly satisfactory; from a nutritional viewpoint the corrected figures may be preferred, on account of the higher vitamin content of fresh milk.[1] The moving price index in the last two columns of Table II has been compiled by comparing the total cost of the foods in each of the dietaries at the actual prices with that of the same quantities at 1936 prices, its compilation therefore differs fundamentally from that of the Ministry of Labour and of the Allen-Seers index.[2] The prices refer not always to individual foods; they were calculated for the same food groups as shown in Table I, and thus permit of a certain amount of unavoidable substitution, *e.g.*, of dried eggs for fresh eggs, semolina and barley flakes for rice, etc. This substitution led to a very steep rise in the price of cereals in 1947, when barley flakes had to take the place of rolled oats and oatmeal, which were rationed and very scarce.[3]

For all the dietaries since 1941, the uncorrected index of cost was higher than the price index; but since the spring of 1947, the price index rose above the corrected index of cost. This suggests that apart from the improvement on the 1936 diet through the replacement of fresh full cream milk by condensed milk, there were for the first 6 years certain other culinary improvements, while since then there occurred a slight deterioration, as compared with the diet in 1936. These differences between the diets are, of course, not intentional but incidental, due to the rigidity of rationing and to the necessity of accepting what substitutes were available at any given period for foods that could be bought freely in 1936, but that were scarce during the period under survey.

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[1] The importance of this is, however, debatable, in relation to Mr. Rowntree's dietary. Fresh full cream milk has, indeed, a substantially higher content of vitamin A—which is confined to the creamy part—than skimmed tinned milk, and possibly also a somewhat higher content of vitamin C. But Mr. Rowntree's dietary included 1 lb. of liver, which, as ox liver, would have yielded 68,160 I.U. of vitamin A, as sheep liver, 204,480 I.U., and as pig liver, 22,720 I.U., while a pint of fresh full cream milk only provides between 400 and 800 I.U. of this vitamin, as against between 40 and 50 I.U. from a pint of reconstituted skimmed condensed milk. As regards vitamin C, Mr. Rowntrees' allowance for the purchase of unspecified fruit and vegetables would have permitted a weekly expenditure of about 6d. —not provided for in our dietaries—on citrus fruit and water cress, which would have far more than compensated for any shortage of vitamin C in the tinned milk. The replacement of tinned skimmed milk by fresh milk would, of course, make no difference to the total calcium content of the diet.

[2] If we express the base year (1936) by o and the year under survey by n, then the formula for the Ministry of Labour and the Allen-Seers index is $\frac{\Sigma P_n Q_0}{\Sigma P_0 Q_0}$, while that applied for our price index is $\frac{\Sigma P_n Q_n}{\Sigma P_0 Q_n}$.

[3] *Cf.* **Table III.**

In Table III we have analysed the average rises in the prices of the main food groups, and in Table IV we show the proportion of the total cost of the dietaries taken up by these foods. It will be seen that by 1949, the indices of the prices of all cereals including bread, of fresh milk, and of margarine and

TABLE III

Indices of Average Prices of Food Groups

Moving Weights[1]. Average Prices in 1936=100

	Spring	Autumn	Spring	Autumn	Spring	Autumn
	(*a*) Meat, Bacon, Sausages		(*b*) *All Cereals*[2] *excl. Bread*		(*c*) All Cereals[2] incl. Bread	
1941	126	125	*146*	*168*	111	106
1942	125	125	*126*	*140*	105	118
1943	132	131	*137*	*137*	118	118
1944	136	134	*140*	*147*	119	121
1945	133	139	*144*	*147*	121	121
1946	140	140	*147*	*193*	121	142
1947	190	—	*294*	—	175	—
1948	223	206	*244*	*234*	164	157
1949	223	—	*235*	—	153	—
	(*d*) Fresh Vegetables excl. Potatoes		(*e*) Potatoes		(*f*) Fresh Milk[3]	
1941	150	188	177	160	124	124
1942	275	188	159	133	124	124
1943	238	238	133	133	124	124
1944	325	238	133	133	124	124
1945	288	195	114	152	124	124
1946	295	245	152	133	126	113
1947	414	—	133	—	115	—
1948	335	245	200	200	126	126
1949	500	—	233	—	123	—
	(*g*) Marg. and Cooking Fat		(*h*) Sugar, Syrup, Jam		(*i*) All Other Foods	
1941	139	146	162	184	168	176
1942	144	144	178	153	181	159
1943	144	175	160	180	165	151
1944	175	175	200	200	168	170
1945	175	175	200	200	164	161
1946	198	178	179	202	207	182
1947	184	—	166	—	244	—
1948	184	184	226	245	248	236
1949	202	—	249	—	257	—

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[1] $\frac{\Sigma P_n Q_n}{\Sigma P_0 Q_n}$ (n=year of survey; o=base year=1936).

[2] Including flour.

[3] Including cheap milk at school from 1941 to the spring of 1946, and free milk at school thereafter.

Table IV
Relative Cost of Food Groups

Percentage Figures. Total cost of Diet=100

	Spring	Autumn	Spring	Autumn	Spring	Autumn
	(*a*) Meat, Bacon, Sausages		(*b*) All cereals[1] excl. Bread		(*c*) Bread	
1941	24	22	6	3	10	10
1942	22	18	5	5	9	11
1943	19	23	5	5	9	9
1944	21	20	5	5	9	9
1945	21	22	6	6	10	10
1946	22	22	6	6	10	12
1947	18	—	11	—	10	—
1948	17	16	10	8	11	11
1949	15	—	6	—	10	—
	(*d*) Fresh Vegetables excl. Potatoes		(*e*) Potatoes		(*f*) Fresh Milk[2]	
1941	6	7	12	10	18	18
1942	9	7	10	8	17	18
1943	8	8	8	8	17	16
1944	10	8	7	8	16	16
1945	9	6	4	6	16	16
1946	9	7	5	5	17	15
1947	11	—	4	—	14	—
1948	9	7	4	6	15	15
1949	11	—	6	—	12	—
	(*g*) Margarine and Cooking Fat		(*h*) Sugar, Syrup, Jam		(*i*) All Other Foods	
1941	5	6	4	7	15	17
1942	5	5	5	5	18	23
1943	5	5	5	7	24	19
1944	5	5	6	6	21	23
1945	5	5	6	6	23	23
1946	6	4	4	6	21	23
1947	4	—	4	—	24	—
1948	5	5	4	8	25	24
1949	5	—	5	—	30	—

[1] Including flour.
[2] Including cheap milk at school from 1941 to the spring of 1946.

Table V
Nutritional Requirements

	Calories	Protein	Calcium	Iron	Vitamin A	Vitamin B$_1$	Vitamin C
Adult Male per Day	3000	70 gm.	0.8 gm.	10 mgm.	3000 I.U.[1]	0.9 mgm.	30 mgm.
MAE[2]							
Adult Male	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adult Female ...	0.83	0.86	1.00	1.00	1.00	0.83	1.00
Child, 7–12 years ...	0.70	0.93	1.75	1.30	1.00	1.05	1.00
Child, 5 years ...	0.50	0.71	1.63	0.80	1.00	0.75	1.00
Family of 5 Persons[3]	3.73	4.43	7.13	5.40	5.00	4.68	5.00

[1] International Units. [2] Male Adult Equivalent.
[3] 2 children 7–12 years, 1 child 5 years.

cooking fat, had risen by less than the price index as a whole; but these foods only absorbed 27 per cent of the total cost of the diet. The very steep upward movement in the price of vegetables other than potatoes from November 1948 to May 1949 is, obviously, a seasonal symptom; but even in November 1948 the cost of the cheapest vegetables was about 2½ times as high as in the autumn of 1936.

As regards the price index of fresh milk it should be noted that we did not allow for the receipt of cheap milk at school in 1936, since then it was not available in all schools. We therefore assumed for fresh milk in 1936 a cost of 3d. per pint, while the cost per pint in our dietaries from 1941 onward was obtained by dividing the total cost of all the fresh milk scheduled, by the total number of pints. This accounts for the fluctuations in this index; for while the number of pints to be purchased at the full price underwent some changes, in accordance with the general supply of first-class protein foods and the availability of non-priority milk, we always included 5 pints of milk for the three children at school, which until the spring of 1946 cost 1½d. a pint and which were obtained free thereafter.

The standard requirements of the main nutrients as laid down by the Ministry of Health are set out in Table V, in absolute figures for a male adult, and in relative ones for all the 5 persons that constitute the family for which the ' human needs ' diet has been designed. From all the diets in this series, including Mr. Rowntree's diet, the calorific intake would have been satisfactory and that of the other nutrients from satisfactory to very good, with the exception of the intake of calcium. The supply of calcium from the diet would still have fallen short by over one-fifth of the average standard requirement as recommended by the Ministry of Health, even if we only consider the diets from 1943 onwards, when all bread and flour were reinforced with calcium. To attain the standard intake it would have been necessary for the schedules to include up to 36 pints of milk, the quantities varying according to the amounts of cheese that could be obtained per week by a family of 5 persons.

5. The Composition of the Diet in Terms of Calories

All the dietaries provide for 3,000 calories per Male Adult Equivalent[1] per day. Diagram A shows the relative composition of the diets for the different periods in terms of the calorific values of five food groups, *viz.*, cereals, potatoes, sugar, fats, and all other foods. This is not an arrangement into watertight compartments; we have simply attempted to group together the main foods that from a culinary as well as from a dietetic view point appear to be closely related and that are important as sources of energy. The group of cereals corresponds to foods nos. 12, 13, 17, and 18, in Table I, *i.e.*, it includes bread, flour, and all grain products. The group of sugar refers not only to sugar bought as such but also to the sugar contained in the condensed milk. Not included, however, are syrup, jam, and dried fruit,

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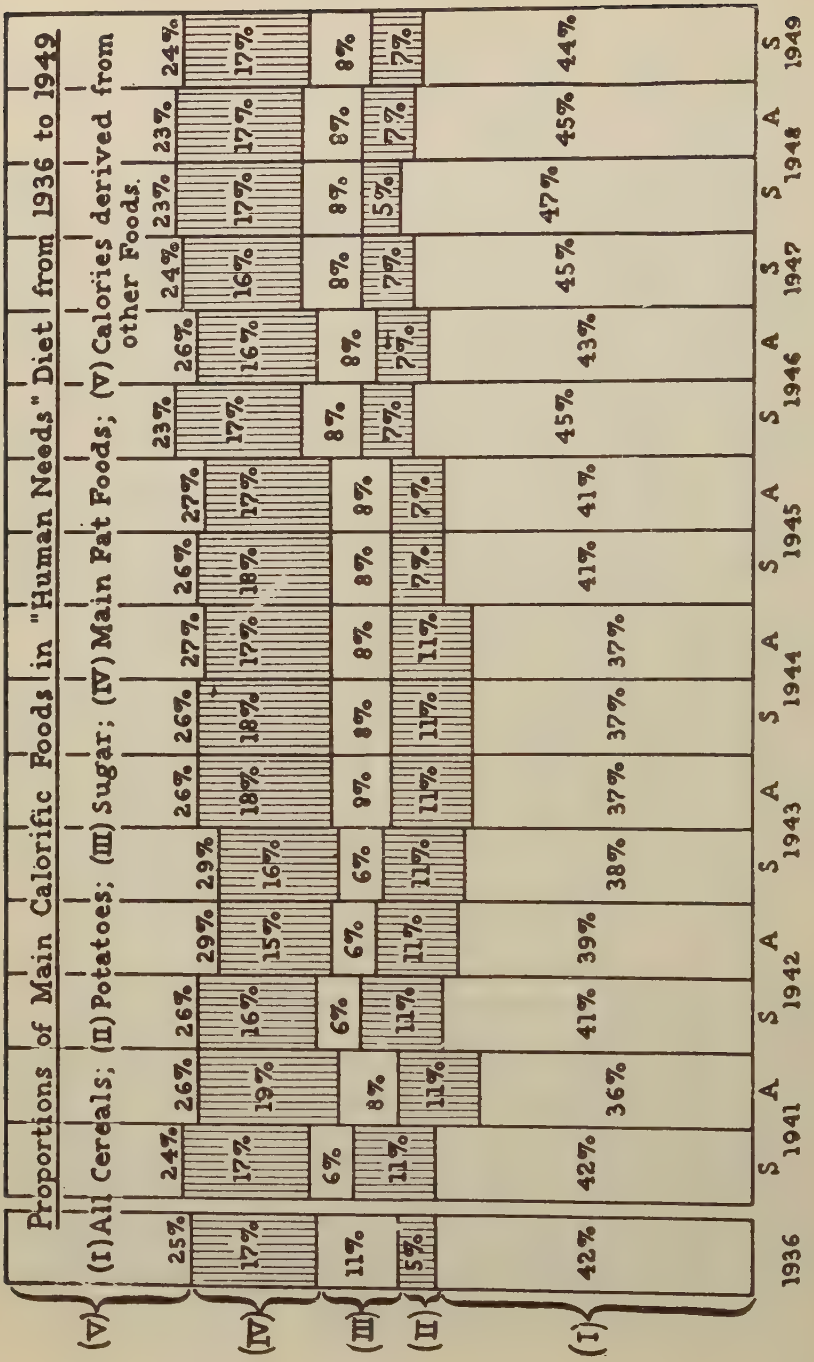
[1] In future we shall employ the abbreviation MAE.

DIAGRAM A


Proportions of Main Calorific Foods in "Human Needs" Diet from 1936 to 1949
(I) All Cereals; (II) Potatoes; (III) Sugar; (IV) Main Fat Foods; (V) Calories derived from other Foods.
1936: (V) 25% (IV) 17% (III) 11% (II) 5% (I) 42%
S 1941: 24% 17% 6% 11% 42%
A: 26% 19% 8% 11% 36%
S 1942: 26% 16% 6% 11% 41%
A: 29% 15% 6% 11% 39%
S 1943: 29% 16% 6% 11% 38%
A: 26% 18% 9% 11% 37%
S 1944: 26% 18% 8% 11% 37%
A: 27% 17% 8% 11% 37%
S 1945: 26% 18% 8% 7% 41%
A: 27% 17% 8% 7% 41%
S 1946: 23% 17% 8% 7% 45%
A: 26% 16% 8% 7% 43%
S 1947: 24% 16% 8% 7% 45%
S 1948: 23% 17% 8% 5% 47%
A: 23% 17% 8% 7% 45%
S 1949: 24% 17% 8% 7% 44%
(V)
(IV)
(III)
(II)
(I)

since it would have required somewhat detailed calculations to assess the sugar content of the different kinds of dried fruit that were available during the different periods, and to omit dried fruit without also omitting syrup and jam seemed to be more arbitrary than omitting all three foods, which to a considerable extent are culinary substitutes for one another, and were employed by us as such in the compilation of the several dietaries.

The group of fat foods covers besides margarine and cooking fat also the fat content of bacon and of milk. The fat content of full cream milk in particular is of importance, since a pint of milk of average quality provides about 20 grammes of fat, and the schedule for 1936 allowed only for the consumption of skimmed milk, as compared with that of mainly full cream milk in our schedules since 1941.

Group V comprises the remaining foods: meat, sausages, fish, eggs, cheese, jam, syrup, dried fruit, dried legumes, cocoa, fresh fruit and vegetables except potatoes, and the non-fatty parts of milk and bacon.

As a group, cereals are the most important calorific foods, in particular for a poor family, since many of these foods provide calories at a relatively small outlay. They also contain appreciable amounts of second-class protein, besides minerals and vitamins of the vitamin B group, and they are therefore more satisfying and more complete foods than either sugar or fats. However, on account of the substantial amounts of bread that are usually eaten in any case, diets are nowadays rarely insufficient in second-class protein, and the consumption of cereals can therefore be assumed to be elastic within certain limits without adversely affecting the nutritional intake. If additional second-class protein is required it can be obtained in more concentrated form from dried legumes. During the war, people were encouraged to substitute as far as possible home grown potatoes for bread, which to a considerable extent required imported flour, and we assumed that during this period a family of 5 person would have consumed up to 5 lb. of potatoes per day. A shortage of potatoes occurred in the spring of 1945, and we consequently reduced the amount of potatoes in the dietary to 21 lb. Once the war had ended it was unlikely that families would revert to an abnormally large consumption of potatoes, the less so since potatoes are considerably more expensive than bread, in terms of calories and protein. A severe shortage of potatoes arose in 1948, and from November 1947 until May 1948, potatoes were rationed at 3 lb. per head per week.

The rationing of bread, which lasted from July 1946 until July 1948, is not reflected in the total allowance of cereals in our diet schedules, since a family with three young children would have been able to purchase all the bread they required—partly by means of exchanging food ‘ points ’ for ‘ bread units ’—and a poor family could not be assumed to economize in the consumption of bread at a time when many other important foods were scarce and dear. Indeed, the shortage of inexpensive legumes in the spring of 1946, the reduction in the fat ration from 8 oz. per head per week to 7 oz., and, finally, the severe shortage of potatoes, called for the inclusion of increasing quantities of cereals in the diet, if it was to be maintained reasonably well balanced at a low cost.

The replacement of fresh milk for sweetened condensed milk and the rationing of sugar at 8 oz. per head per week reduced the proportion of calories derived from group III in Diagram A from 11 per cent in 1936 to 6 per cent in 1941. In the autumn of 1941, the ration of sugar was temporarily raised to 12 oz. per week, and the proportion went up to 8 per cent. From 1943, it became possible to purchase sugar instead of the jam ration, and we assumed that a poor housewife would have availed herself to some extent of this concession. In 1948, jam was taken off the ration, but the sugar ration was raised from 8 oz. to 10 oz. per person per week. Hence from 1943 onwards the calorific value of the sugar group represented again 8 per cent of the total calorific value of the diet. Several of our schedules also included small quantities of sweetened condensed milk, but the amounts of sugar contained in these have only a slight effect on our percentages.

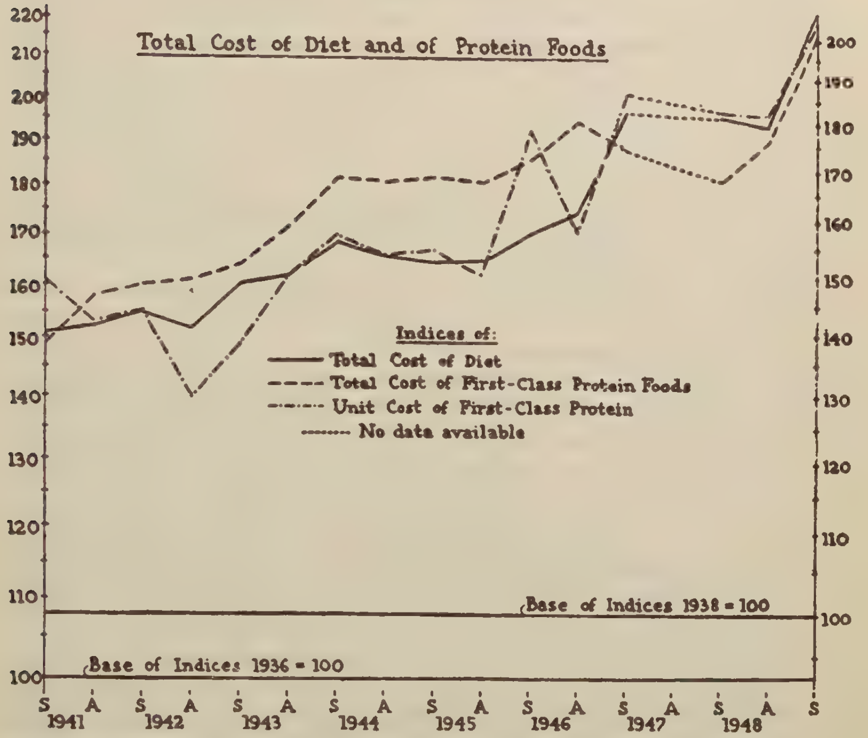
From the spring of 1941 until the spring of 1943, we only allowed in the dietaries small amounts of bacon for the flavouring of dishes, since as compared with its pre-war cost, the price of bacon had risen steeply. Substitute foods, however, were often very scarce, and, moreover, the monotonous diets which people in all walks of life had been willing to accept in the first years of the war could not be endured permanently. From the autumn of 1943 we therefore assumed the purchase of the full bacon ration. The calorific value of streaky bacon rashers is given in the *Memorandum* as 129 calories, of which 9 calories derive from the non-fatty part and 120 calories from the fatty part. We included the former with the foods in group V and the latter with those in group IV.

6. THE FIRST-CLASS PROTEIN FOODS

From a housewife's viewpoint, the first-class protein foods, except milk, are the ' tasty ' foods, which are essential to give body to a main dish and make it acceptable to the family, and in particular to the breadwinners. Most of the first-class protein foods are dear foods, in that for a given outlay they yield fewer calories and less protein than seond-class protein foods. Some first-class protein is considered by most authorities indispensable for human nutrition; but as to how much of it opinions differ widely. Mr. Rowntree's diet provided for an intake of first-class protein of about 36 grammes per MAE per day. The intake from the diets scheduled by us between the autumn of 1941 and the autumn of 1945 would actually have been somewhat larger than this, on account of the larger amounts of milk included, as compared with the amount of milk in the schedule for1936.

Diagram B considers the content of first-class protein in the ' human needs ' diet in terms of cost, and compares the outlay on first-class protein foods with that on the total diet. All the data are expressed in the form of indices. They are again based on Mr. Rowntree's figures for 1936, which have been equated to 100. A second base has been calculated for 1938 by assuming an increase in the cost of a 'human needs' diet from 1936 to 1938 proportionate to that shown by the Ministry of Labour index of the retail price of food.[1] The indices are marked off on logarithmic scales, the scale on the left hand side referring to 1936 and that on the right hand side to 1938 as the

DIAGRAM B



base year. The changes in the total amounts of first-class protein in our diet schedules are indicated by the distance between the curves showing the total cost of all first-class protein foods in the diet and the unit cost of these foods *in terms of first-class protein.* If these curves coincided the protein content of all the diets would have been unity, *i.e.*, it would have been the same as that in Mr. Rowntree's diet. The index figure of first-class protein content can be read off from the diagram by measuring the distance between the two curves and setting it off against the base line, the highest index—115—being reached in the autumn of 1942, when the cheese ration amounted to 8 oz. per per head per week.

To assess the unit cost of foods in terms of any one single nutrient is, of course, to underrate both the nutritional and the culinary value of many of them; thus, bacon, full cream milk, and cheese, are not only valuable animal protein foods but also valuable fat foods; moreover, milk and cheese are the most important sources of calcium. Condensed milk supplies also appreciable quantities of sugar. However, their content of first class protein is a useful common factor for considering changes in the total consumption and the total cost of these foods in terms of indices.

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[1] For both years the average was taken of the twelve monthly figures of the Ministry of Labour index.

The third curve in Diagram B measures the changes in the total cost of the diet, as compared with that in 1936 or 1938. In Table II we gave for each year the index of average cost of the diets scheduled in spring and in autumn. It is interesting to notice to what a small extent—if at all—seasonal fluctuations enter into the picture as shown in Diagram B. The main reason for this is that we always drafted our schedules on the assumption that since a housewife's income is unlikely to change with the seasons she will naturally tend to adjust her total purchases when certain foods are temporarily scarce and dear, if her housekeeping allowance is very small and her outlay on food has to be kept as low as is reasonably possible.

For the ordinary housewife, milk is a food distinctly different from all the other 'tasty' animal protein foods. Nutritionally, this subdivision is wholly unrealistic; cheese, in particular, is nothing but modified milk. If, however, we consider milk and cheese in one group there is some justification for taking together the remaining first-class protein foods in another group. We will term these groups for short the milk and the meat group.[1] The changes in the relative importance of these two food groups in the 'human needs' diet are shown in Diagram C and Diagram D. In Diagram B we saw that from the autumn of 1941 until the autumn of 1945 the content of animal protein in our diet schedules was higher than that in Mr. Rowntree's diet; Diagram C and Diagram D show that this was almost exclusively due to the larger quantities of milk provided for in our diet schedules as compared with Mr. Rowntree's schedule. The index figure of protein content of the milk group jumped up steeply in the autumn of 1942, owing to the temporarily increased cheese ration, when the schedule included 2½ lb. of cheese instead of the 1 lb. in 1936, and it reached its lowest point since the autumn of 1941 in the spring of 1948, when the weekly cheese ration for a family of 5 persons was only 7½ oz. The replacement of fresh full cream milk for condensed skimmed milk, which in 1936 cost only 1¾d. per pint of fresh milk consistency, is reflected in the high indices of cost, in spite of the fact that from 1941 until the spring of 1945, 5 pints of milk would have been obtained by the children at school at a cost of 1½d. per pint, and free since the autumn of that year.

The abnormally large consumption of potatoes during the war was forcibly curtailed by the shortage of potatoes in the spring of 1945, and it would have been exceptional for a family to return to it. We assumed that a housewife would try to make good the reduction in the consumption of potatoes by various other foods and not simply by bread, the more so since the public were still requested by the Government to keep down the consumption of bread and flour. In the autumn of 1945, fresh herrings, which

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[1] This group includes all meat, bacon, sausages, all fish, and all eggs.

DIAGRAM C

Meat, Bacon, Sausages, Eggs, Fish

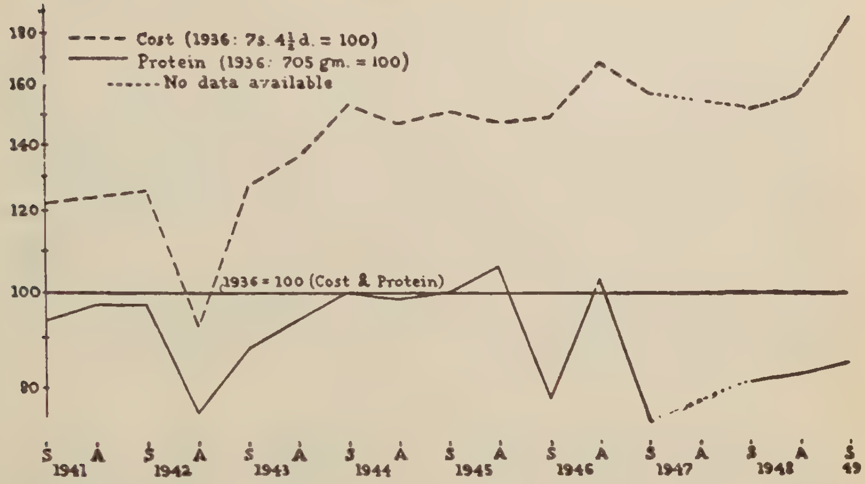
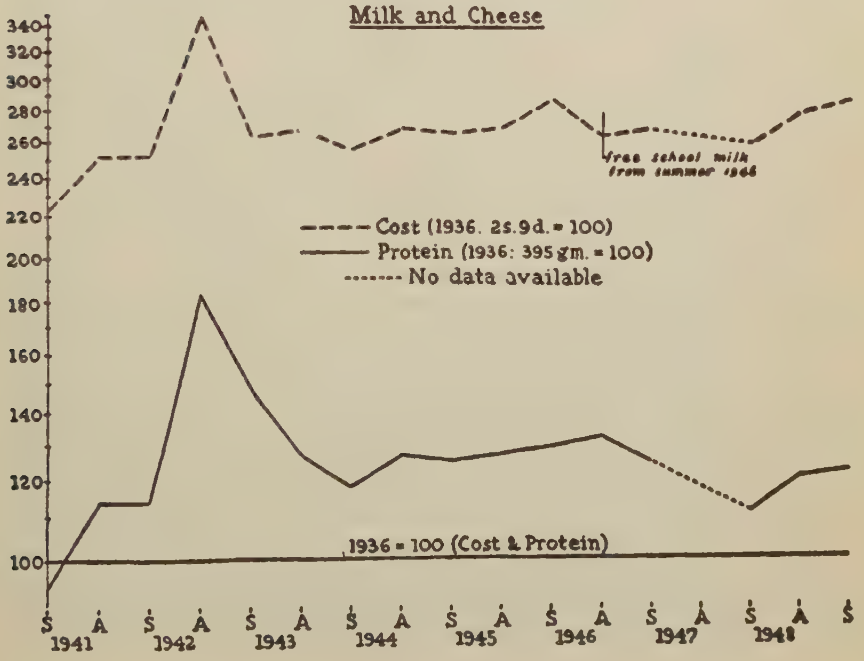


DIAGRAM D


Milk and Cheese

had been unobtainable in April of that year, were plentiful, and the addition of 2 lb. of these to the diet would have raised the intake of animal protein from the meat group by about 5 per cent above that from the same group in Mr. Rowntree's diet (Diagram C). In the autumn of 1946, a shortage of cereals in general, and in particular a shortage of rolled oats and oatmeal, called for a certain amount of substitution, and we again suggested in our schedule increased purchases of fresh herrings and kippers, which provide popular breakfast and supper dishes. Between the spring of 1944 and the spring of 1945, the foods in the meat group in our diet schedules would have supplied an amount of protein about equal to that which could be obtained from Mr. Rowntree's diet. Apart from these instances, the intake of animal protein from the meat group in our schedules would have been lower than that from the same group in Mr. Rowntree's diet. The steep increase in the total cost of these foods after the war reflects mainly the rise in the prices of meat and sausages, and the relatively large numbers of eggs included in our schedules in order to compensate for the shortage of meat and cheese.

7. Conclusion

A diet that would supply adequate and moderately attractive menus for a family of 5 persons could be purchased in the autumn of 1936 at 21s. 10½d. per week. In the spring of 1941, an outlay of just over 1½ times as much was required for an equivalent diet; by the end of the war the cost had risen to about 1⅔ times that in 1936, and by the spring of 1949 it amounted to over 2⅕ times the cost in 1936. During the same period, the moving price index of the food groups in the dietaries went up from 100 in 1936 to 146 in the spring of 1945, and to 209 in the spring of 1949. The improvement in the diets in 1945 and 1949, as compared with the diet in 1936, indicated by the differences in these two sets of figures, were partly accounted for by the replacement of fresh full cream milk for skimmed condensed milk, in the dietary for 1945, and more than fully in the dietary for 1949, whose indices of price and of cost, corrected for this, suggested a slight culinary deterioration, as compared with the diet for 1936, by about 1½ per cent.

Just under half of the calorific intake from the diet was supplied by cereals and potatoes in 1936, and just over half of it in the spring of 1949. The sugar bought as such or obtained from sweetened condensed milk yielded 11 per cent of the total calories in 1936, and 8 per cent in 1949. The fat content of the diets during and after the war would have been approximately the same as that of the diet in 1936, largely because Mr. Rowntree's diet only allowed for the consumption of skimmed condensed milk while our dietaries envisaged the consumption of full cream fresh milk. Owing to the larger amounts of milk included in the schedules since 1941, the diets between the autumn of 1941 and the autumn of 1945 would have yielded somewhat more animal protein than the diet for 1936, but from the spring of 1947 the schedules provided for less animal protein, as meat and most of the meat substitutes had become increasingly scarce or dear.

Already in 1936 Mr. Rowntree had stressed the point that only a housewife who was a skilful cook, and who also had a fair knowledge of the nutritive values of foods, would be able to select a diet so economical and at the same time so attractive as the one set out in his schedule. This point has become even more important during and since the war, when not only a housewife's choice of foods was closely circumscribed by rationing and shortages, but when, moreover, sudden changes in rationing and in the general conditions of supply, demanded from her a very high degree of adaptability, in the selection of foods as well as in cooking. It needed, indeed, exceptional knowledge of food values as well as considerable skill in cooking for the adequate nutrition of a family to be attained at the figures of cost computed by us since 1941.

T. SCHULZ.

TABULAR APPENDIX

TABLE I. UNITED STATES

Index Nos. 1935–39=100[1]	Monthly Averages 1941	1945	1946	1947	1948	1949 Feb.	Mar.	April	May	June
Personal Incomes, bill. $[2]	95.3	171.6	178.1	195.2	213.6	212.9[8]	212.4[8]	212.5	212.9	213.5
Consumption expenditures, bill. $[3] ...	82.3	121.7	143.7	164.4	177.7	...	177.9[8]	...	...	178.2
Dept. Store Sales—										
Value Index[4]	133	207	264	286	302	281[8]	277[8]	284	292	(284)
Vol. Index of Farm Marketings[5] ...	116	140	139	147	143	113	120	114	123	(137)
Employment,[6] millions	36.2	40.0	40.7	42.5	45.1	44.0	43.9	43.9	43.7	(43.7)
Unemployment, millions	5.0	1.1	2.3	2.1	2.1	3.2	3.2	3.0	3.3	3.8
Building Contr. Awarded—										
Value Index	213	119	266	276	331	294	304[8]	324	314	340
Vol. Index[7]...	183	86	168	149	159	138	143[8]	152	147	158
Ind. Production Index[2]—										
Durable	201	274	192	220	225	225	223	212	201	(194)
Non-durable	142	166	165	172	177	173	168	162	161	(160)
Minerals	125	137	134	149	155	149	136[8]	148	145	(134)
Manuf. Orders—Index[9] (1939=100)	203	189	211	247	252	220[8]	215[8]	195	203	209
Manuf. Inventories[9]—										
Index (1939=100)	158	167	218	261	279	299	296	291	288	283
Wholesale Price Index— ...										
Farm Products	108	169	198	239	247	221	226[8]	225	226	222
Foods	105	134	165	213	227	204	206	206	207	206
All others	110	123	135	166	186	187	186	184	181	180
Cost of Living Index	105	128	139	159	171	169	170	170	169	170
Factory Av. Hourly Earngs., cts. ...	73	102	108	122	133	138	137	137	137	(138)
Imports, Total Mill. $	279	344	409	478	589	568	632	534	540	526
from Europe, Mill. $	24	...	66	68	91	89	91	67	67	...
Exports, Total Mill. $	427	817	812	1278	1051	1032	1159	1148	1078	1104
to Europe, Mill. $	128	...	342	440	357	374	412	401	392	...

Sources: *Bureau of the Census* for Unemployment; *U.S. Department of Commerce* for Income Payments, Consumer Expenditures, Farm Marketings, Manufacturers' Orders and Inventories, and Foreign Trade; *U.S. Department of Labor* for Employment, Prices and Wages; *Federal Reserve Board* for Department Store Sales, Building Contracts and Industrial Production.

[1] All index numbers, except those of prices and of manufacturers' orders, inventories and farm marketings, are adjusted for seasonal variations.

[2] Seasonally adjusted at annual rates.

[3] Quarterly figures, seasonally adjusted at annual rates.

[4] Average per working day.

[5] The monthly figures are no longer seasonally adjusted.

[6] All employees in non-agricultural establishments, unadjusted figure.

[7] Value Index deflated with the (Engineering News Record) Index of Construction.

[8] Revised figure.

[9] Value Index.

TABLE II. UNITED KINGDOM[1] A. OFFICIAL FIGURES

	Unit	Monthly Averages 1938	1945	1946	1947	1948	1949 Mar.	April	May	June	July
Production of—											
*Coal (weekly av.) ...	Mill. tons	4.4	3.5	3.6	3.8	4.0	4.3[2]	4.0	4.2	4.1[2]	3.6
Steel (weekly av.) ...	000 tons	200	227	244	240	286	313[2]	305	316	301[2]	244
Cement	000 tons	643	338	548	580	710	722	897[9]	738	739	915
*Bricks	Millions	650	102	287	378	383	435	386	451	444	416
Passenger Cars	Thousands	28.4	1.4	18.3	23.9	27.4	37.7	28.5	31.6	40.4	25.5[7]
Comm. Vehicles ...	,,	8.7	10.2	12.2	12.9	14.2	20.7	14.9	17.5	19.9	12.6
Merchant Vessels ...	Mill. gr. tons	0.78	1.49	1.77	1.98	1.98	1.93	1.99	1.96	1.93	1.87
Cotton Yarn (wkly. av.)	Mill. lb.	23.7[11]	11.48	12.73	12.73	15.24	15.97[2]	14.87	16.85	14.45[2]	...
Rayon	,,	8.52	7.09	8.97	9.90	12.34	15.48	13.18	14.74	13.67	...
Electricity	000 mill. kwh	2.0	3.1	3.4	3.5	3.9	4.7	3.8	3.85	3.39	3.26
Gas (weekly av.) ...	Mill. therms	31.9	38.9	43.1	44.4	46.2	54.5	46.6	45.3	41.5	38.8
*Perm. Houses ...	Thousands	30.0	0.22	4.12	10.53	16.6	18.25[15]	13.11[15]	15.33[15]	15.15	13.74
*Employment total ...	Millions	...	...	...	...	...	22.0	22.1	22.1	22.2	...
*Manuf. Ind.	,,	...	...	...	...	...	8.2	8.2	8.3	8.2	...
*Unemployment ...	Thousands	1688	103	359	256	282	340	325	304	264	243
*Retail sales (weekly) ...	1938=100	100	116	137	155	176	183[15]	189[15]	197	191	...
Wholesale Prices—											
Food and Tobacco ...	,,	100	163	163	169	186	183	191	204	207	207
Ind. Prod.	,,	100	169	178	200	234	238	242	241	240	235
Consumer Goods' Prices	,,	100	153	157	168	...	...	...	...	...	...
Retail Prices	June 1947=100	...	...	...	100[13]	108	109	109	111	111	111
Weekly Wage Rates ...	Sept. 1939=100	...	150	162	168	176	180	180	180	181	181
Retained Imports ...	£ Mill.	77	92	108	149	173	190	187	195	202	186
U.K. Exports	,,	39	33	76	95	132	160	137	151	143	142
Terms of Trade[8] Annual	1938=100	100	95	93	86	85	...	...	...	...	...
Monthly	1947=100	...	...	...	100	...	95	95	97	98	100

Sources : Monthly Digest of Statistics ; Ministry of Labour Gazette ; Board of Trade Journal.

[1] Figures for items marked * refer to Great Britain.

[2] Average of five weeks.

[3] Tonnage under construction at end of period, 100 gross tons and over.

[4] New permanent houses completed by local authorities and private builders; excluding aluminium houses.

[5] New series. Total number of persons aged 15 and over who work for pay or gain (including domestic servants). Part-time workers are counted as full units.

[6] Number of insured workers registered as wholly unemployed or temporarily stopped. From July 1948 onwards, all unemployed persons on the registers of Employment Exchanges. Mid-yearly (mid-July), or mid-monthly figures.

[7] Prices of consumer goods and services calculated from the annual White Papers on National Income and Expenditure.

[8] Ratios of indices of export prices to indices of import prices. Annual indices are ratios of ' Average Value ' indices. Monthly indices are ratios of ' Price Indices'. The former series is preferred for long range, the latter for short range, comparisons. Different construction of indices prevents linking.

[9] Five week period (or 4½ week period).

[10] Excluding staple fibre, mixed and waste yarns.

[11] 1937.

[12] Excluding staple fibre.

[13] June 17th.

[14] Total available at gas works.

[15] Revised figure.

TABLE IIB

Derived Estimates

	Annual averages			1949					
	1946	1947	1948	1st qtr.	Apr.	May	June	July	Aug.
1. Working-class cost of living (1937–8=100)									
(*a*) Food	...	138[1]	149	149	150	158	159	160	...
(*b*) All items	...	161–2[1]	174	176	175	179	179	180	...
2. Middle-class cost of living. All items (1938=100)	...	182[1]	195	198	198	200	200	201	...
3. Seasonally corrected Index of Industrial Production (1946=100)	100	108	121	125	124	131[4]	132[4]	...	...
4. Seasonally corrected Coal Statistics (annual rates, millions of tons)									
(*a*) Total production	190	197	207	213	214	207[4]	202[4]	200	(216)
(*b*) Inland consumption	186	184	192	194	198	189[4]	187[4]	184	(186)
(*c*) Exports and Bunkers[2]	9	5	16	17	15	17	18	19	(17)
(*d*) Total consumption (b+c)	195	189	208	211	213	206[4]	205[4]	203	(203(
(*e*) Stock changes (a—d)[3]	—5	+8	—1	+2	+1	+1[4]	–3[4]	–3	(413)

[1] Mid-June. [2] Not seasonally corrected. [3] + = Increase, — = Decrease.

[4] With a rough allowance for the unusual date for Whitsun.

Details of derivation :—

1. Working-class cost of living. BULLETIN, Vol. 10, p. 140.
2. Middle-class Cost of Living. BULLETIN, Vol. 11, p. 133.
3. Seasonal Correction of Industrial Production. BULLETIN, Vol. 11, p. 100.
4. Seasonal Correction of Coal Statistics. BULLETIN, Vol. 11, p. 141.

TABLE III. FRANCE

	Unit	Monthly Averages 1938	1945	1946	1947	1948	1949 Feb.	Mar.	April	May	June	July
Production of—												
Coal[1]	Mill. m. tons	4.0	2.8	4.1	3.9	4.7	4.2	4.7	4.4	4.3	4.3	4.0
Electricity	000 Mill. kwh.	1.5	1.5	1.8	2.1	2.3	2.1	2.3	2.2	2.8	2.3	...
Steel	Mill m. tons	518	136	367	478	604	717	826	750	810	...	...
Cement	000 m. tons	296	127	281	321	448	462	556[4]	550	570	...	...
Comm. Vehicles ...	Thousands	3.7	2.7	5.2	5.9	7.9	8.4[4]	9.3[4]	8.9[4]	9.2	...	...
Passenger Cars ...	,,	15.2	0.1	2.5	5.5	7.4	11.9	15.2	15.1	16.9	...	...
Cotton Fabrics ...	000 m. tons	12.1	2.7	8.4	11.2	12.6	12.1	14.1	13.3	13.9	...	...
Wagon ldgs. (dly.)	Thousands	41	17	31	35	38	39	34.9[4]	32.9	32.8	32.1	...
Unemployment[2] ...	,,	373.6	15.8	15.7	7.4	16.7	31.7	33.4	35.1[2]	39.2[2]	...	...
Wholesale Prices ...	1938=100	100	373	648	989	1712	1899	1872	1846	1890	1813	...
Retail Prices[3]	,,	100	393	645	1030	1632	1857	1781	1757	1738	1726	...
Imports	000 m. frs.	3.8	4.8	19.5	28.9	54.5	74.0	77.3	85.4	81.3	...	...
Exports...	,,	2.5	1.0	8.5	17.7	35.9	65.3	63.3	69.1	65.9	...	...

Source : Bulletin de la Statistique Générale de la France.
[1] Including lignite.
[2] Unemployed on relief ; monthly figures refer to mid-month, but for April and May refer to 1st of month.
[3] Retail prices in Paris of 34 articles. [4] Revised figure.

TABLE IV. BELGIUM

	Unit	Monthly Averages 1939	1945	1946	1947	1948	1949 Jan.	Feb.	Mar.	April	May	June
Production												
Total Industry	1936–38=100	95	...	...	96	103	106[3]	110	111	107	...	...
Coal	Mill. m. tons	2.5	1.3	1.9	2.0	2.22	2.43	2.33	2.62	2.43	2.40	2.35
Steel	000 m. tons	252	61	190	241	326	370	359	416	356	339	...
Cement ...	,,	213	54	157	217	278	177	175	224	253	236	...
Electricity	Mill. kwh	466	377	520	601	659	721	671	738	669	670	...
Textile Ind.	1938=100	113	38	92	110	104	100	99	116	...	...	...
Paper Ind.	,,	120	26	109	132	135	131	135	148	...	...	...
Unemployment[1]	Thousands	195	145	67	68	130	254	240	237[3]	220	213	215
Retail Prices	1936–38=100	106	329	334	343	393	393	388	382	380	...	...
Imports[2] ...	000 mill. frs.	1.7	1.1	4.4	7.1	7.3	6.6	6.5	7.1[3]	6.7	6.9	...
Exports[2] ...	,,	1.8	0.3	2.5	5.1	6.2	6.1	6.7	7.6	7.0	7.2	...

Source : Institut National de Statistique ; Banque Nationale de Belgique. Bulletin de Recherches Économiques et Sociales.
[1] Daily average of registered unemployed. [2] Including Luxemburg. [3] Revised figure.

TABLE V. NETHERLANDS

	Unit	Monthly Averages 1939	1945	1946	1947	1948	1949 Feb.	Mar.	April	May	June
Production—											
Coal	000 m. tons	1072	424	693	842	919	892	1026	934	961	944
Electricity	Mill. kwh	223	98	225	283	344	372	401	354	361	...
Bricks	Millions	84.1	7.6	45.3	60.0	81.0	89.1	90.4	75.4	77.9	...
Cement	000 m. tons	45.1	21.2	33.6	43.3	49.1	30.4	45.6	48.4	50.8	46.2
Butter	000 m. tons	9.0	3.2	4.4	4.4	5.9	3.3	4.9	7.2	10.4	10.1
Cheese	000 m. tons	10.1	3.1	5.4	5.4	8.1	4.3	8.1	10.8	13.5	...
Unemployed[1] ...	Thousands	235.6	...	53.1	30.7	29.0	50.1	39.0	36.0	...	...
Retail trade[2] ...	1938=100	105	...	181	242	283	246[5]	283	322	...	...
Cost of living ...	1937=100	102	(176)	(192)	199	205	216[6]	217	...	...	...
Wage rates in Industry[3]	1937=100	104	135	168	173	182	188	187	187	188	188
Imports[4]	Mill. fl.	130	...	197	357	414	405	479	440	432	...
Exports[4]	,,	84	...	68	158	226	249	287	258	277	...

Source : Centraal Bureau voor de Statistiek ; Rotterdamsche Bankvereeniging ; United Nations, Monthly Bulletin.

[1] Registered wholly unemployed excluding public relief workers.

[2] Value of turnover. [3] Hourly rates for men in manufacturing, mining and construction.

[4] Excluding silver bullion and specie. [5] January 1949, 276. [6] January 1949, 215.

TABLE VI. DENMARK

Index Nos. 1938=100	Unit	Monthly Averages 1939	1945	1946	1947	1948	1949 Feb.	Mar.	April	May	June
Production											
Industrial[1] ...	Index	105	74	101	116	129	136	138	124	135	136
Animal prod.	,,	101	68	76	75	68	75	89	86	92	94
Butter	000 m. tons	15.2	11.0	11.7	10.4	10.1	8.8	11.1	12.6	16.2	16.6
Meat (pork)	,,	27.4	15.1	16.3	16.9	14.3	15.4	26.6	17.5	19.3	21.2
Electricity[2] ...	Mill. kwh	69[3]	76	98	115	145	143	148	130	131	123
Wholesale prices ...	Index	105	190	188	207	227	233	233	233	233	232
Cost of living ...	,,	101	159	158	163	166	...	...	169	...	...
Imports	Mill. kr.	145	58	237	258	285	342	409	330	397	355
Exports	,,	132	75	135	193	288	240	276	248	304	289

Source : Danmarks Statistik, Statistiske Efterretninger ; United Nations Monthly Bulletin.

[1] Revised Series. [2] Consumption. [3] 1938.

TABLE VII. NORWAY

Index Nos. 1938=100	Unit	Monthly Averages 1939	1945	1946	1947	1948	1949 Jan.	Feb.	Mar.	April	May
Ind. Prod.... ...	Index	107	69	100	115	125	132[1]	142[1]	138[1]	136	141
Electricity gen. ...	Mill. kwh	851	820	938	938	1037	1343	1256	1369	1250	1243
Retail turnover	Value Ind.	105	120	182	223	223	181	196	...	...	...
Wholesale prices...	Index	102	177	169	175	181	183	183	183	183	183
Cost of living ...	Index	102	156	159	160	159	157	158	158	158	159
Imports	Mill. kr.	114	100	183	318	309	283	376	343	290	436
Exports	,,	67	27	100	152	172	169	173	228	208	168

Source : Central Bureau of Statistics ; Bank of Norway.

[1] Revised figure.

TABLE VIII. SWEDEN

Index Nos. 1939=100	Unit	Monthly Averages 1939	1945	1946	1947	1948	1949 Jan.	Feb.	Mar.	April	May
Ind. Production[1]...	Index	109	113	136	139	143	146	147	146	147	...
Unemployment[2]	Per cent	9.2	4.5	3.2	2.8	2.8	3.7	3.9	3.3	~~2.7~~	...
Steel Production	000 m. tons	99	100	101	99	105	...	...	115[4]	...	...
Cost of living ...	Index[3]	104	145	146	150	157	...	...	160[4]	...	...
Imports	Mill. kr.	208	90	282	435	404	379	338	378	325	360
Exports	,,	157	146	212	270	330	334	256	290	309	362

Source : Index, Svenska Handelsbanken ; Quarterly Review, Skandinaviska Banken ; United Nations Monthly Bulletin.

[1] Revised series.

[2] Unemployment in Trade Unions (percentage).

[3] 1937=100.

[4] Refers to quarter.

TABLE IX. SWITZERLAND

Index Nos. 1938=100	Unit	Monthly Averages 1938	1945	1946	1947	1948	1949 Feb.	Mar.	April	May	June	July
Employment—												
All Industries ...	Quart. Index	100	110	123	134	136	...	130[5]	...	...	128	...
Building	,,	100	89	108	119	123	...	107[5]	...	...	127	...
Metal Ind. ...	,,	100	122	137	147	152	...	146[5]	...	...	143	...
Chemical Ind. ...	,,	100	130	157	174	178	...	172[5]	...	...	168	...
Cotton	,,	100	76	87	97	101	...	98[5]	...	...	93	...
Food Ind. ...	,,	100	106	120	129	133	...	125[5]	...	...	126	...
Electricity gen.[1] ...	Mill. kwh	448	665	696	650	728	501	531	648	769	783	...
Building permits :												
New Flats... ...	Numbers	703	752	1043	1261	848	1469	1207	1270	887	2133	...
Factories[2] ...	,,	93	167	267	281	217	...	480[5]	...	...	447	...
Tourism[3]	Thousands	630	264	506	703	667	509	419	463	564	808	...
Cost of living[4] ...	Index	100	152	152	158	163	163	162	161	161	162	161
Imports	Mill. frs.	134	102	285	402	417	324	364	306	304	303	278
Exports	,,	110	123	223	272	286	268	290	270	269	288	290

Source : Schweiz. Nationalbank ; Departement Fédéral de l'Economie Publique.

[1] Public power stations.
[2] Including extensions and structural changes.
[3] Number of nights spent by foreign tourists in Swiss hotels and sanatoria (000).
[4] August 1939=100.
[5] Monthly average for the quarter ending with the month mentioned.

TABLE X. ITALY

	Unit	Monthly Averages 1939	1945	1946	1947	1948	1949 Feb.	Mar.	April	May	June
Electricity Prod.	000 m. kwh	1.3	0.9	1.3	1.5	1.7	1.3	1.3	1.2	1.6	...
Steel Prod. ...	000 m. tons	190	23	96	142	177	145	146	146	202	...
Coal Imports ...	000 m. tons	1100[1]	...	476	757	656	543	858	700	1471	1502
Unemployment ...	Millions	...	...	1.7	2.0	(1.7)[2]	1.9	1.8	1.7	...	...
Cost of living ...	1938=100	...	...	2823	4575	4844	4958	4980	5052	5047	5213
Imports[3]	000 m. lire	0.9	...	7.6	77.6	68.5	69.9	87.7	80.3	...	...
Exports[3]	,,	0.9	...	5.4	28.3	47.6	50.4	55.4	47.8	...	...

Source : Instituto Centrale di Statistica ; United Nations Monthly Bulletin of Statistics.

[1] Average 1935, 1937 and 1938.
[2] Average October–December.
[3] Excluding silver specie.

TABLE XI. FINLAND

Index Nos. 1939=100	Unit	Monthly Averages 1939	1945	1946	1947	1948	1949 Feb.	Mar.	April	May	June
Production—											
Home Ind.[3] ...	Index	100	100	119	132	156	...	162[4]	...	...	...
Export Ind.[3] ...	"	100	...	...	...	...	...	...	...	...	...
Electricity ...	Mill kwh	259	247	244	239	232	268	294	282	308	267
Wholesale Prices	Index	100	366	573	690	911	906	900	896	884	885
Cost of living ...	1938–39[1]=100	101	278	445	584	786	780	772	...	...	...
Imports	Mill. Mark	631	568	2023	3914	5537	4200	4806	4604	5319	4590
Comm. Exports ...	"	643	436	1921	3769	4709	3681	3877	4015	4079	4667
Reparation Deliv.	"	...	685	731	867	962	...	2045[2]	...	...	...

Source : Unitas, Quarterly Review of Trade Conditions in Finland ; Monthly Bulletin, Bank of Finland. United Nations Bulletin of Statistics.

[1] August 1938 July 1939. [2] Total for quarter ending March.

[3] Official annual index 1939–46 ; Unitas monthly index 1946–47 ; Kansallis-Osake-Pankki quarterly index 1948 onwards.

[4] Refers to quarter.

TABLE XII. POLAND

	Unit	Monthly Averages 1938[1]	1945	1946	1947	1948	1949 Feb.	Mar.	April	May	June
Production—											
Coal	Mill. m. tons	3.2	2.3	3.9	4.9	5.9	5.7	6.4	5.9	6.2	5.7
Cement	000 m. tons	143	33	117	127	152	146	194	177	230	...
Glass	"	2.1	...	...	5.0	6.3	6.9	7.5	5.6	6.2	...
Paper	"	17.1	3.4	12.4	17.2	20.6	20.2	23.9	21.6	21.0	...
Electricity	Mill kwh	319	418	476	551	626	...	693	610	623	...
Cost of living[2]	Index[2]	...	...	...	100	104	109	109	111	112	112

Source : Central Statistical Office of the Republic of Poland.

[1] Pre-war frontiers.

[2] Retail prices of goods and services purchased by a wage-earner's family in Warsaw city (prices of rationed articles are not included). 1947=100.

TABLE XIII. CZECHOSLOVAKIA

	Unit	Monthly Averages 1939	1945	1946	1947	1948	1949 Feb.	Mar.	April	May	June
Production—											
Coal	000 m. tons	1398	952	1178	1351	1479	1445	1555	1378	1431	1313
Electricity ...	Mill. kwh	343	369	464	555	626	663	735	630	651	654
Iron Ore ...	000 m. tons	...	23.3	93.0	113.6	108.9	131.9	139.7	126.4	124.7	114.2
Wholesale Prices[1]	1937=100	113	170	297	312	326	355	351	353	351	348
Cost of living[2] ...	Mar. 1939=100	91	170	309	295	292	...	...	...	...	...
Imports	Mill. Kr.	915	...	859	2410	3143	2937	3216	3694	3524	4331
Exports	,,	998	...	1190	2380	3137	3048	3560	3497	3543	3930

Source : U.N. Monthly Bulletin. Statistical Bulletin of Czechoslovakia.

[1] New Series. U.N. Monthly Bulletin.

[2] At Prague, manual worker's family ; in the first week of the month.

TABLE XIV. GERMANY (BIZONAL AREA)

	Unit	Monthly Averages 1936	1946	1947	1948	1949 Feb.	Mar.	April	May	June
Ind. Prod.	1936=100	100	33	40	60	80	90	82	88	85
Machinery and optical goods ...	,,	100	...	34	52	82	94	85[3]	89	87
Vehicles	,,	100	...	15	39	72	85	79	86	92
Elec. Equipment ...	,,	100	...	59	105	174	187	169	173	169
Text. & Clothing ...	,,	100	...	30	52	76	93	85	93	86
Chemicals	,,	100	...	40	61	77	90	81[3]	86	88
Production of—										
Hard Coal	Mill. tons	9.7	4.5	5.9	7.3	7.9	8.9	7.9	8.4	8.1
Steel Ingots ...	000 tons	1187	207	246	448	662	752	705	771	750
Cement	,,	626	194	225	426	419	546	583	669	659
Potash	,,	44.0	23.7	26.8	42.5	52.0	59.1	50.9	56.8	58.3
Cotton Yarn ...	,,	19.5	3.3	5.5	8.5	12.8	15.8[3]	14.3[3]	16.4[3]	14.5[3]
Electricity gen.[1] ...	000 kwh	948	(1218)	1262	1483	1655	1794	1597	1657	1535
Import arrivals[2] ...	Mill. $	...	54	61	117	113	148	155[3]	(144)	(162)
Export deliveries[2] ...	,,	...	12	19	50	88	86	100	(96)	(104)

Source : Monthly Statistical Bulletin of the Control Commission for Germany (British Element).

[1] Generation by Public Utility Stations. [2] From preliminary survey. [3] Revised figure.

TABLE XV. AUSTRIA

	Unit	Monthly Averages 1937	1946	1947	1948	1949 Jan.	Feb.	Mar.	April	May	June
Ind. Production—											
Prod. Goods	1937=100	100	...	84	129	127	126	146	153	171	...
Cons. Goods	,,	100	...	42	65	68	71	85	85	90	...
Production of—											
Hard Coal ...	000 m. tons	19.2	9.0	14.8	14.8	16.0	16.5	16.0	15.5	15.3	15.1
Lignite ...	,,	270	200	236	278	304	296	339	306	298	285
Pig Iron ...	,,	32.4	4.8	23.2	51.1	60.5	62.4	77.6	69.0	79.0	74.2
Steel	,,	54.1	15.6	29.7	54.0	62.9	63.8	71.9	64.3	69.4	56.9
Cement ...	,,	35.8	32.6	25.2	60.1	47.1	51.6	80.2	86.9	100.5	...
Electricity gen. ...	Mill. kwh	152	242	270	351	278	251	290	343	388	402
Cost of living[1] ...	Mar. '38=100	...	107	211	321	370	367	365	363	363	432
Imports	Mill. Schill.	121.1	20.9	99.4	216.9	265.5[2]	293.6[2]	364.9[2]	338.7	341.0	...
Exports	,,	101.4	18.3	70.2	165.3	223.4	234.7	286.8	258.3	291.3	...

Source : Monatsberichte des Oest. Institutes für Wirtschaftsforschung.

[1] In Vienna. Revised index of the Institut für Wirtschaftsforschung : 1 old Schilling (S 1937)=1 new Schilling (S 1948).

[2] Revised figures.